Specifications for the
Repair of
USCGC WASHINGTON (WPB-1331)

June 2009
Rev 0

UNITED STATES COAST GUARD
MAINTENANCE AND LOGISTICS COMMAND PACIFIC
NAVAL ENGINEERING DIVISION
RONALD V. DELLUMS FEDERAL BUILDING
1301 CLAY STREET, SUITE 807N
OAKLAND, CALIFORNIA 94612-5249

Table of Contents

Definite work items are identified by a “D” preceding the item number in the table above. Optional work items are designated by an “O” and shall be individually priced for possible performance.

CUTTER DESCRIPTION — USCGC WASHINGTON (WPB-1331)

[Design Class: 110 WPB "B"]

Hull Characteristics:

Length, Overall	110' 0"
Length, Between Perpendiculars	104' 0-1/2"
Beam, Molded at Deck Amidships	21' 1"
Depth, Molded at Deck Amidships	10' 11-1/4"
Draft, Mean to Design Waterline	6' 5-3/4"
Design Displacement (7' 3" Baseline Draft)	153.6 long tons
Displacement, Minimum Operating	132.1 long tons
Displacement, Light Ship	116.8 long tons
Mast Height	55' above baseline
Framing	Longitudinal
Bulkheads	Seven watertight transverse
Fin Stabilizers (Port & Starboard)	Frame 22 1/2
Anchor	150 lb Danforth with 450 ft. 3" Nylon Rope

Material:

Hull	BS-4360, GR 43A Steel
Main Weatherdeck & Superstructure	5086 Aluminum Alloy

Machinery Characteristics:

Main Propulsion	Two Paxman Type 16 RP200M (Valenta) V-16 diesel; 2880 BHP each at 1500 RPM (max)
Reduction Gears	Two ZF Model BW 1500 reversible reduction gearboxes with 1.839:1 gear ratio
Propulsion Shaft	Monel Alloy K500, 4.000 dia./AQUAMET 17
Shaft Seal	Shaft packing
Shaft Bearings, Forward	Rubber Cutless
Shaft Bearings, Intermediate	Rubber Cutless
Shaft Bearings, Aft	Rubber Cutless
Propellers	Two propellers, 49.6" dia., 61.4" pitch (@ 0.7R), 5-bladed, keyless, skewed
Rudders	Twin underslung type, 5 sq. ft. each
Ship's Service Generators	Two Caterpillar Type 3304BT diesel; 99KW, 460V, 60Hz, 3 phase, 3-wire @ 1800 RPM

Tank Capacities:

Fuel Oil (95%)	9306 gallons
Fresh Water (100%)	940 gallons
Lubricating Oil (95%)	109 gallons

Tank Capacities (Continued):

Tank Number	Content	Capacity
3-17-0-F	FUEL OIL	2352 Gals
3-17-1-F	FUEL OIL	2560 Gals
3-17-2-F	FUEL OIL	2560 Gals
3-28-1-F	FUEL OIL	1162 Gals
3-28-2-F	FUEL OIL	1162 Gals
3-27-1-F	WASTE OIL	155 Gals
3-27-2-F	OILY WATER	155 Gals
3-16-0-K	SEWAGE	554 Gals
3-28-0-W	AFT GRAY WATER	144 Gals
3-22-0-Q	FWD GRAY WATER	70 Gals
3-12-1-W	FRESH WATER	438 gals
3-12-2-W	FRESH WATER	438 gals

Accommodations:

Officers	2
Enlisted (incl 2 extras)	16

CONSOLIDATED LIST OF REFERENCES

Drawings

110-WPB 533-3, Rev D; Installation of Tankless Hot Water Heater
110-WPB 171-2, Rev D; Mast Details
110-WPB 330-1, Rev B; Ship Service Lighting One-Line Diagram (Obsolete)
110-WPB 526-2, Rev C; Gray Water Piping Arrg't & Dets
110B-WPB 256-5, Rev B; Main Engine Seawater Cooling 3-Way Valve Ripout &
110B-WPB 320-1, Rev G; Ships Svc Pwr 1-Line Diag
110B-WPB 437-1, Rev G; Mn Eng & Generator Instrum (Flapper & Walton Vlv S
110B-WPB 85-12, Rev A; Booklet of General Plans (Supercedes 110B-WPB-085-
110B-WPB 085-6, Rev -; Miscellaneous Construction Sketches, Sheet 6
110B-WPB 111-3, Rev F; Shell Expansion (Supercedes 110B-WPB-0111-1)
110B-WPB 117-1 Rev H; Transverse Sections (Frames 0 Thru 4)
110B-WPB 121-1, Rev D; Longitudinal Bulkheads
110B-WPB 185-1, Rev F; Equipment Foundations–Auxiliary Equipment, Sht 61
110B-WPB 320-8, Rev B; Power One Line Wiring Diagram & Details (Mep)
110B-WPB 330-1, Rev G; Ship Serv Lighting One Line Diagram (Obsoletesuper
110B-WPB 501-1, Rev E; Piping System Schematics (Bilge & Fire Piping), Sht 7 of 7
110B-WPB 501-1, Rev H; Piping System Schematics (Bilge & Fire Piping), (Sheet 1 of 7)
110B-WPB 526-1, Rev M; Scuppers & Deck Drains Piping Arrangement T
110B-WPB 528-2, Rev E; Sewage Piping Arrangement & Details
110B-WPB 529-2, Rev B; Oil Water Separator Piping A&D
110B-WPB 529-3, Rev A; Oily Water Separator Piping Diagram Modifications
110B-WPB 529-4, Rev A; Oily Water Separator Piping Arrangement Mods
110B-WPB 635-1, Rev C; Linings & Insulation Plan & Details
110B-WPB 85-12, Rev -; Booklet of General Plans (Supercedes 110B-WPB-085-7)
110B-WPB 85-8, Rev B; Booklet of One Line Diags (Bilge & Fire Piping), (Sheet 1 of 10)
110B-WPB 85-8, Rev B; Booklet of One Line Diags (Bilge & Fire Piping), (Sheet 9 of 10)

Applicable Documents

15 USC §2601 to 2692, Toxic Substance Control Act (TSCA)
16 CFR §1303, Ban of Lead-Containing Paint and Certain Consumer Products Bearing Lead-Containing Paint
29 CFR §1910, Occupational Safety and Health Standards
29 CFR §1915, Occupational Health and Safety Standards for Shipyard Employment
29 CFR §1926, Safety and Health Regulations for Construction
33 CFR §154, Facilities Transferring Oil or Hazardous Materials in Bulk
33 USC §1251 to 1387, Federal Water Pollution Control Act
33 USC §1342, National Pollutant Discharge Elimination System
33 USC §2701 to 2761, Oil Pollution Control Act of 1990
40 CFR §112, Oil Pollution Prevention
40 CFR §204, Noise Emission Standards for Construction Equipment
40 CFR §261, Identification and Listing of Hazardous Waste
40 CFR §262, Standards Applicable to Generators of Hazardous Waste
40 CFR §263, Standards Applicable to Transporters of Hazardous Waste
40 CFR §279, Used Oil Management Standards
40 CFR §300, National Oil and Hazardous Substances Pollution Contingency Plan
40 CFR §61, National Emission Standards for Hazardous Air Pollutants
40 CFR §761, Polychlorinated Biphenyls (PCB) Manufacturing, Processing, Distribution in Commerce, And Use Prohibitions
42 USC §4851 to 4852, Residential Lead-Based Paint Hazard Reduction Act

42 USC §4901 to 4918, Noise Control Act (NCA)
42 USC §6901 to 6991(i), Resource Conservation and Recovery Act (RCRA)
42 USC §7401 to 7671(q), Clean Air Act
42 USC §9601 to 9675, Comprehensive Environmental Response, Compensation, And Liability Act (CERCLA)
49 CFR §100-199, Hazardous Materials Transportation, Handling, And Storage Regulations
7 USC §136 to 136(y), Federal Insecticide, Fungicide, And Rodenticide Act (FIFRA)
American Petroleum Institute (ANSI/API) 9A-04, 25TH Edition; Specification for Wire Rope and ISO 10425:2003, Steel Wire Ropes for the Petroleum and Natural Gas Industries–Minimum Requirements and Terms for Acceptance
American Society for Testing and Materials (ASTM) A105/A105M, 2005; Standard Specification for Carbon Steel Forgings for Piping Applications
American Society for Testing and Materials (ASTM) A106/A106M, 2006A; Standard Specification for Seamless Carbon Steel Pipe for High-Temperature Service
American Society for Testing and Materials (ASTM) A181/A181M, 2006; Standard Specification for Carbon Steel Forgings, For General-Purpose Piping
American Society for Testing and Materials (ASTM) A500, 2001; Standard Specification for Coldt-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes
American Society for Testing and Materials (ASTM) A501, 2007; Standard Specification for Hot-Formed Welded and Seamless Carbon Steel Structural Tubing
American Society for Testing and Materials (ASTM) F1387, 99(2005); Standard Specification for Performance of Mechanically Attached Fittings
American Society for Testing and Materials (ASTM) F1836M, 97(2007); Standard Specification for Stuffing Tubes, Nylon and Packing Assemblies (Metric)
American Society for Testing and Materials (ASTM) F683, 2003A; Standard Practice for Selection and Application of Thermal Insulation for Piping and Machinery
American Society for Testing and Materials (ASTM) F708, 92(2004); Standard Practice for Design and Installation of Rigid Pipe Hangers
American Society of Mechanical Engineers (ASME) B16.11, 2005; Forged Steel Fittings, Socket-Welding and Threaded
American Society of Mechanical Engineers (ASME) B16.9, 2003; Factory-Made Wrought Buttwelding Fittings
American Welding Society (AWS) D1.1/D1.1M:2006, 2008 Rev 08; Structural Welding Code–Steel, 20TH Edition
CG Tech Pub 2937, Manufacturer's Instruction Book–SWBS Group(s) 558-583
CG Tech Pub 3093, Information Handbook
CG Tech Pub 3108, Auxiliary Systems–SWBS 500 (Volume 4)
CG Tech Pub 4541, 3/17/2003; Oily Water Separator (2 GPM)–Model Sarex Vgs-2 W/Ba-1
CG Tech Pub 4633, 3/21/2007; Potable Water Heaters–Models C1N183 & C2N363
CG Tech Pub 4671, 2/2/2008; MDE Salt Water Valves
CG Tech Pub 4691, 3/27/2008; Sewage System
COMDTINST 6260.21, Hazard Communications for Work Place Materials
COMDTINST 9077.1, Equipment Tag-Out Procedure, Revision C
COMDTINST M10360.3, Coatings and Colors Manual, Revision C
COMDTINST M10360.3, Rev C, 6/9/2006; Coatings and Colors Manual
COMDTINST M10360.3, Rev C; Coatings and Colors Manual
COMDTINST M10360.3B, B, Coatings and Colors Manual, 11/24/2003
COMDTINST M10360.3B, Coatings and Colors Manual, 6/12/01
COMDTINST M16478.1, Hazardous Waste Management Manual
COMDTINST M16478.2, Procurement, Handling and Disposal of Polychlorinated Biphenyls
COMDTINST M6240.5, 10/10/1999; Water Supply and Waste Water Disposal Manual
COMDTINST M6260.16A, Asbestos Exposure Control Manual, Ch-1
COMDTINST M6260.16A, CH-1, Asbestos Exposure Control Manual, 2/27/96
California Code of Regulations, Title 22, Division 4, Environmental Health and 4.5, Environmental Health Standards for the Management of Hazardous Waste

Relocation, Splice, Repair and Installation
MLCPAC Standard Specification 304.2, Shipboard Electrical Cable Removal, Relocation, Splice, Repair and Installation, 3/1/2000
MLCPAC Standard Specification 400, Rev -, 3/1/1998; General Instructions for Installation, Repair, And/Or Relocation of Electronic Equipment
MLCPAC Standard Specification 634, 3/1/2000; Deck Covering Renewal
MLCPAC Standard Specification 997, 3/29/2004; Drydockingmlcpac Standard Specification 074, Welding and Allied Processes, 3/21/2003
Manual No. BAMNOCD CM, July 2004; IOM Manual OCD Bilge Alarm Model OCD CM
NAVSEA 0900-LP-001-7000, Acn #1; Fabrication and Inspection of Brazed Piping Systems
NAVSEA Dwg 803-1385866, Rev E; Penetrations; Bulkhead and Deck
NAVSEA Dwg 803-6397383, Rev -; Discharge, Ovbd, Cu-Ni, 3/4 to 10 Inch
NAVSEA Dwg 804-1385781, Rev E; Pipe Hangers for Surface Ships (Superseding NAVSEA Dwg. 810-1385781)
NAVSEA Dwg 810-1385781, Rev E; Hanger, Pipe, Surface Ship, Temperature to 425F (Superseded by NAVSEA Dwg. 804-1385781)
NAVSEA Dwg 810-1385880, Rev D; Fittings, Cu-Ni Alloy, Slip on Sleeve
NAVSEA S9074-AR-GIB-010/278, 8/1/1995; Requirements for Fabrication Welding & Inspection & Casting Inspection & Repair for Machinery, Piping & Pressure Vessels
NAVSEA T9074-AS-GIB-010/271, Change Notice 1; Requirements for Non-Destructive Testing Methods
NAVSEA T9074-AS-GIB-010/271, Rev 97; Requirements for Non-Destructive Testing Methods
National Fire Protection Association NFPA 51 Standard for the Design and Installation of Oxygen-Fuel Gas Systems for Welding, Cutting, And Allied Processes
Naval Ships' Technical Manual, Chapter 074, Volume 1, Chg 5, Welding and Allied Processes Rev 4, 8/1/1999
Naval Ships' Technical Manual, Chapter 074, Volume 3, Gas Free Engineering (Apr 98)
Naval Ships' Technical Manual, Chapter 589, Cranes, 12/1/2001
Naval Ships' Technical Manual, Chapter 593, Pollution Control
Naval Ships' Technical Manual, Chapter 613, Wire and Fiber Rope and Rigging, 8/30/1999
Naval Ships' Technical Manual, Chapter 635, Thermal, Fire and Acoustic Insulation
Naval Ship's Technical Manual (NSTM) Chapter 505, Rev 3; Piping Systems
Naval Ship's Technical Manual (NSTM) Chapter 593, Rev 5; Pollution Control
Naval Ship's Technical Manual (NSTM) Chapter 635, Rev 3; Thermal, Fire and Acoustic Insulation
Nondestructive Testing Handbook, American Society for Non-Destructive Testing, Volume 1, Section 7
QQ-N-281 , Rev D(2); Nickel-Copper Alloy Bar, Rod, Plate, Sheet, Strip, Wire, Forgings. And Structural and Special Shaped Sections, 10/23/1985
SAE-AMS-C-6183, Rev -; Cork and Rubber Composition Sheet for Aromatic Fuel and Oil Resistant Gaskets, 12/18/1998
Steel Structures Painting Council, SSPC-SP 1, Solvent Cleaning, 9/1/2000
Steel Structures Painting Council, SSPC-SP 10, Near White Blast Cleaning, 9/1/2000
Steel Structures Painting Council, SSPC-SP 12, (Joint Surface Preparation Standard NACE No. 5) Surface Preparation and Cleaning of Steel and Other Hard Materials by High- And Ultrahigh-Pressure Water Jetting Prior to Recoating, 1/1/1995
Steel Structures Painting Council, SSPC-SP 3, Power Tool Cleaning, 9/1/2000
Steel Structures Painting Council, SSPC-SP VIS-1-89, Visual Standards for Abrasive Blast Cleaned Steel, 1/1/1989
The Society for Protective Coatings SSPC-SP 1, Rev -, 11/1/2004; Solvent Cleaning
The Society for Protective Coatings SSPC-SP 10/NACE No.2, Rev -, 11/1/2004; Near-White Blast Cleaning
The Society for Protective Coatings SSPC-SP 11, 11/1/2004; Power Tool Cleaning to Bare Metal
The Society for Protective Coatings SSPC-SP 12/NACE No.5, Rev -, 7/1/2002; Surface Preparation and Cleaning of Steel & Other Hard Materials by High and Ultrahigh Pressure Water Jetting Prior to Recoating

The Society for Protective Coatings SSPC-SP 15, Rev -, 11/1/2004; Commercial Grade Power Tool Cleaning
The Society for Protective Coatings SSPC-SP 3, 11/1/2004; Power Tool Cleaning
The Society for Protective Coatings SSPC-VIS 1, Rev -, 11/1/2004; Guide and Reference Photographs for Steel Surfaces Prepared by Dry Abrasive Blast Cleaning
The Society for Protective Coatings SSPC-VIS 3, Rev -; Guide and Reference Photographs for Steel Surfaces Prepared by Hand and Power Tool Cleaning
Title 11, Hawaii Administrative Code
Title 18, Alaska Administrative Code

CONSOLIDATED LIST OF GOVERNMENT FURNISHED PROPERTY

Description	Manufacturer	Part Number	NIIN	Qty	UOI
ITEM 5: TANKLESS HOT WATER SYSTEM INSTALLATION					
36 KW Tankless Hot Water Heater, 480 Volt, 3 Phase, 44 Amp,60 Hz	Keltech Inc	C2N363/480D-CG		1	Each
18 KW Tankless Hot Water Heater, 480 Volt, 3 Phase, 22 Amp, 60 Hz	Keltech Inc	C1N183/480D-CG		1	Each
ITEM 9: OILY WATER SEPARATOR (OWS) MISCELLANEOUS PIPING MODIFICATIONS					
Description	Manufacturer	P/N	NSN	Qty	UOI
OCD-CM Bilge Alarm with ½" Valve Discharge Manifold (Furnished with 50 Ft of ¼" OD copper tubing)	Coffin World Water Systems.	VSBA0120	None	1	ea

GENERAL REQUIREMENTS — DOCKSIDE, HOME PORT

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1 INTENT

This document invokes general requirements applicable to ship repair contracts for work performed at a cutter's home port pier. The items discussed in the General Requirements are an amplification of, or are in addition to, the specific items of the Specification. Other sections of the contract establish requirements for work on Coast Guard cutters. The General Requirements are a part of the contract and, as such, compliance is a contractual requirement. The Contractor is responsible for understanding and complying with all requirements established in the Specifications.

Government Furnished Property: NONE

2 REFERENCES

Coast Guard Drawings: NONE

Applicable Documents:

COMDTINST M6260.16A, Asbestos Exposure Control Manual, Ch-1
COMDTINST 6260.21, Hazard Communications for Work Place Materials
COMDTINST 9077.1, Equipment Tag-Out Procedure, Revision C
COMDTINST M16478.1, Hazardous Waste Management Manual
COMDTINST M16478.2, Procurement, Handling and Disposal of Polychlorinated Biphenyls
COMDTINST M10360.3, Coatings and Colors Manual, Revision C
Federal Standard FED-STD-595B(1), Rev B, Not 1; Color Used in Government Procurement
MIL-A-22262, Rev B, Amd 2; Abrasive Blasting Media Ship Hull Blast Cleaning
MIL-DTL-5624, Rev U; Turbine Fuel, Aviation, Grades JP-4 and JP-5
MIL-PRF-16884, Rev L; Fuel, Naval Distillate
MIL-STD-1625, Rev C, Chg Not 1; Safety Certification Program for Drydocking Facilities and Shipbuilding Ways for U.S. Navy Ships
MLCPAC Standard Specification 997, 3/29/2004; Drydockingmlcpac Standard Specification 074, Welding and Allied Processes, 3/21/2003
MLCPAC Standard Specification 085.1, General Requirements for Drawing Preparation, 3/1/2000
National Fire Protection Association NFPA 51 Standard for the Design and Installation of Oxygen-Fuel Gas Systems for Welding, Cutting, And Allied Processes
Naval Ships' Technical Manual, Chapter 074, Volume 1, Chg 5, Welding and Allied Processes Rev 4, 8/1/1999
Naval Ships' Technical Manual, Chapter 074, Volume 3, Gas Free Engineering (Apr 98)
Nondestructive Testing Handbook, American Society for Non-Destructive Testing, Volume 1, Section 7
7 USC §136 to 136(y), Federal Insecticide, Fungicide, And Rodenticide Act (FIFRA)
15 USC §2601 to 2692, Toxic Substance Control Act (TSCA)
33 USC §1251 to 1387, Federal Water Pollution Control Act
33 USC §1342, National Pollutant Discharge Elimination System
33 USC §2701 to 2761, Oil Pollution Control Act of 1990
42 USC §4851 to 4852, Residential Lead-Based Paint Hazard Reduction Act
42 USC §4901 to 4918, Noise Control Act (NCA)
42 USC §6901 to 6991(i), Resource Conservation and Recovery Act (RCRA)
42 USC §7401 to 7671(q), Clean Air Act

42 USC §9601 to 9675, Comprehensive Environmental Response, Compensation, And Liability Act (CERCLA)
16 CFR §1303, Ban of Lead-Containing Paint and Certain Consumer Products Bearing Lead-Containing Paint
29 CFR §1910, Occupational Safety and Health Standards
29 CFR §1926, Safety and Health Regulations for Construction
29 CFR §1915, Occupational Health and Safety Standards for Shipyard Employment
33 CFR §154, Facilities Transferring Oil or Hazardous Materials in Bulk
40 CFR §61, National Emission Standards for Hazardous Air Pollutants
40 CFR §112, Oil Pollution Prevention
40 CFR §204, Noise Emission Standards for Construction Equipment
40 CFR §261, Identification and Listing of Hazardous Waste
40 CFR §262, Standards Applicable to Generators of Hazardous Waste
40 CFR §263, Standards Applicable to Transporters of Hazardous Waste
40 CFR §279, Used Oil Management Standards
40 CFR §300, National Oil and Hazardous Substances Pollution Contingency Plan
40 CFR §761, Polychlorinated Biphenyls (PCB) Manufacturing, Processing, Distribution in Commerce, And Use Prohibitions
49 CFR §100-199, Hazardous Materials Transportation, Handling, And Storage Regulations
California Code of Regulations, Title 22, Division 4, Environmental Health and 4.5, Environmental Health Standards for the Management of Hazardous Waste
California Code of Regulations, Title 23, Waters
California Health and Safety Code, Divisions 20, Miscellaneous Health and Safety Provisions, 26, Air Resources, 37, Regulation of Environmental Protection, 103, Disease Prevention and Health Promotion, 104, Environmental Health.
Chapter 173-303, WASHINGTON Administrative Code
Chapter 340, Oregon Administrative Rules
Title 18, Alaska Administrative Code
Title 11, Hawaii Administrative Code

3 ADMINISTRATION

3.1 DEFINITIONS

3.1.1 Unless otherwise stated, the phrase *as shown*, *as indicated*, *as detailed*, or words of similar import refer to the contractual documents including drawings referenced in the specification.

3.1.2 The phrase *as directed*, *as required*, *as permitted*, *approved*, *acceptance*, or words of similar import refer to the direction, requirements, permission, approval, or acceptance by the Contracting Officer or a properly designated Contracting Officer's Representative (COR).

3.1.3 *Remove/Reinstall* – To remove the original item and then later install the same original item back in its place after performing specified work on it.

3.1.4 *Renew* or *renewal*–To remove the original item and to install a new item in new condition, identical or of like size, material and quality to that removed (i.e. "Renew-in-Kind").

3.1.5 *Replace* – To remove the original item and to install in its place a different item as described in the specification.

3.1.6 *Restore* – To bring back to the former, original or normal condition before alteration or removal.

3.1.7 *Underwater body* includes the external hull, all appendages, and sea chests from the keel up to and including the upper edge of the boot-top area.

3.1.8 The *Contracting Officer's Representative* (COR) is the person delegated by the Contracting Officer as the on-scene representative for matters concerning performance of work. This includes technical correctness, timeliness, and quality of the Contractor's work. Normally the Commanding Officer of the vessel is designated as the COR.

3.1.9 The *Coast Guard Inspector* is the COR or the individual designated by the COR to perform Coast Guard Inspector duties.

3.1.10 *Condition Found Report* (CFR) – See paragraph 3.8 below.

3.1.11 *Vessel* – Either a Coast Guard cutter (sixty-five feet or greater) or a Coast Guard boat (less than sixty-five feet.)

3.2 REFERENCES

3.2.1 All references shall be of the issue and/or revision indicated in the consolidated list of references. It is incumbent on the Contractor to maintain current MLCPAC Standard Specifications. In many instances, the references will be available for review locally aboard the vessel or at the cognizant Naval Engineering Support Unit (NESU). U. S. Government issued Standardization Documents can be found at: http://stinet.dtic.mil/str/dodiss4_fields.html.

3.2.2 Detail and dimensioned drawings for precision equipment are generally accurate and will give sufficient information for estimating. However, allowance for changes in dimensions should be taken into consideration due to changes of equipment and to the structure and arrangement of the vessel. Actual installations shall conform to the specifications. When it is required that drawings or sketches be prepared, the Contractor shall meet the requirements of MLCPAC Standard Specification 085.1.

3.2.3 All referenced drawings and each piece or page of data that is marked with a Limited Rights Legend is a part of this specification and shall not be used for any purpose other than that contemplated by the specifications or item of work. The Contractor is prohibited from further use, release, or disclosure of this information.

3.2.4 Unless otherwise noted within this specification, hierarchy, priority, or order of precedence of requirements shall be as follows:

Specification Definite Item or Optional Item
Specification General Requirements
Coast Guard Drawings
Coast Guard Technical Manuals
Commercial Drawings
Commercial Technical Manuals
Coast Guard Standards and Instructions
Military and Navy Standards, Specifications, and Technical Manuals
Commercial or Industrial Standards
Commercial practices

3.2.5 Drawing discrepancies found in performance of work associated with this specification which may adversely affect work in this or future specifications shall be reported using "DRAWING DEFICIENCY ACTION FORM." This drawing feedback form, designed to be used by Contractor and Coast Guard personnel alike, may be downloaded from the Procurement section of the following Coast Guard web site: http://www.uscg.mil/mlcpac/mlcp/Eng%20Support/mlcpv/files/procurement/Drawing_Deficiency_Action_Form_editable.pdf. The form shall be downloaded, duplicated and completed, as necessary, to inform MLCP(vs) technical personnel of drawing & configuration problems, as well as, suggested recommendations which may correct them.

3.3 ARRIVAL CONFERENCE

3.3.1 Within two days of the arrival of the vessel, and usually prior to the start of work, the Contracting Officer or the Contracting Officer's designated representative will meet with the Contractor at either the Contractor's conference facilities near the vessel or aboard the vessel (location to be at the sole discretion of the COR).

3.3.2 Normally this conference will be attended by the COR, designated Coast Guard Inspectors, representatives of the cognizant MLCPAC Naval Engineering Support Unit (NESU) and MLCPAC Support Branch (vr). For availabilities at Coast Guard facilities, the facility Hazardous Waste Coordinator will be invited to attend. A sample Arrival Conference Agenda can be found at http://www.uscg.mil/mlcpac/mlcp/Eng%20Support/mlcpv/files/platform_support/Arrival_Agenda_Pkg_Form.doc

3.4 CONTRACTOR'S SUBMITTALS

3.4.1 The Contractor shall provide the following at the arrival conference:
Subcontractor List
Technical Representatives List
Marine Chemist & "Competent Persons" List
Welders' Qualification List
List of Qualified Sil-Brazers
Material Safety Data Sheets
List of Key Personnel
List of Emergency Phone Numbers
Contractor's Inspection And Quality Control System
Contractor's Property Administration System for GFE
Certificate of Insurance
Sample Copy of the Condition Found Report
Contractor's Fire Emergency Response Plan
Contractor's Oil Spill Response Plan
Environmental Submittals (See Section 6)
Contractor Security Requirements

3.5 VESSEL'S SUBMITTALS

3.5.1 The vessel will provide the following at the arrival conference:
List of Key Personnel
List of Emergency Phone Numbers
List of designated Coast Guard Inspectors

3.6 WORKING HOURS

3.6.1 Except for items specifically authorized by COR, Contractor work shall normally be accomplished between the hours of 7:30 a.m. to 10 p.m. Monday through Friday, except Federal Holidays.

3.6.2 If the Contractor desires to accomplish work outside of normal working hours, request shall be made to the COR at least 24 hours in advance. Approval will be the sole discretion of the Contracting Officer or the COR.

3.7 PROGRESS MEETINGS

3.7.1 Weekly progress meetings will be held at either the Contractor's conference facilities near the vessel or aboard the vessel, at the sole discretion of the COR. The day of the week and time of day for the weekly progress meeting will be set by the COR at the arrival conference. Representatives for the COR and the Contractor will meet before each progress meeting to review the percentage of completion for each work item and change. Each progress meeting will result in the COR producing a Contract Status Report documenting the percentage completion and documenting areas needing attention by the Contractor in order to complete the contract on time. The COR will transmit the Contract Status Report to the Contracting Officer, the NESU Representative, and MLCPAC(vr) the

same day. Additional reports/charts shall be presented at each meeting as required by Definite Item "Production Control, Gantt Bar Chart Provide".

3.8 REPORTS/READINGS/AS FOUND CONDITIONS

3.8.1 All readings and inspections are to be taken within twenty-four hours after the machinery or system is opened. The Contractor shall notify the COR of the time and location of inspections requiring Coast Guard verification 24 hours prior to such inspections, **unless** such inspections need to be conducted more than 50 road miles from the primary place of contact performance, in which case 3 working days notice is required, in order to make travel arrangements for the Coast Guard inspectors. Measurements and readings shall be taken with calibrated measurement and test instrumentation. **All reports of readings, operational tests and inspections required by the specifications shall be submitted to the COR in writing, using a "Condition Found Report (CFR)", within twenty-four hours after the readings and/or inspections are made.** Promptness in taking and reporting readings is particularly important for underbody work items such as shaft bearing or rudder bearing clearances. Often during the progress of a work item, conditions are discovered by the Contractor which are considered abnormal for reasons of safety, expected reliability, health, or habitability. These conditions must be brought to the attention of the Coast Guard using a CFR. Details provided by the Contractor in a CFR are important because the CFR may result in a contract change. To speed the contract change process, the Contractor should include in the CFR the following details as a minimum:

3.8.1.1 A sequential number.

3.8.1.2 The contract item which the "CFR" relates to (i.e. D-XX).

3.8.1.3 A clear statement, definition, and description of the condition found, including but not limited to frame numbers, part numbers, materials, and dimensions as appropriate.

3.8.1.4 A proposed or recommended repair to correct the defective condition, including but not limited to frame numbers, part numbers, materials, and dimensions as appropriate.

3.8.1.5 Indicate whether the report requires Coast Guard action or if it is provided "for info" only. If action is required, indicate the time and date when the Coast Guard response is required in order to complete the action within the specified contract performance period. If the action cannot be completed within the specified contract period, so state.

3.8.1.6 A space on the form for the Coast Guard designated representative to make comments.

3.8.1.7 All CFRs shall be signed, dated and submitted by the Contractor's Ship Superintendent. Price proposals for work requests, quick chits, and other change orders shall include, at a minimum, the following information:

3.9 GOVERNMENT FURNISHED MATERIAL/EQUIPMENT

3.9.1 The Contractor shall furnish all equipment, staging, materials, fittings, tools, etc., necessary for proper completion of each item of work unless the specifications indicate the Coast Guard will provide GFM/GFE.

3.9.2 If GFM/GFE is to be furnished by the Coast Guard, it will be indicated in the specification for the specified work item. Unless otherwise noted in the specifications, GFM/GFE will be delivered by the Government to pierside/dockside of the vessel (at the place the vessel is located for the performance of work under this contract). Unless otherwise noted in the specifications, delivery date will be at the Coast Guard's discretion between the start of the contract and up to 5 working days after the start of the contract.

3.9.3 The Contractor shall perform sufficient receipt inspection of the GFM/GFE and then sign for custody of the GFM/GFE by a Coast Guard form DD1149 or comparable Contractor's form. The Contractor assumes the risk of, and shall be responsible for, any loss or destruction of, or damage to Government property upon its delivery to the

Contractor. However, the Contractor is not responsible for reasonable wear and tear to Government property properly consumed in performing this work.

3.9.4 It shall be the Contractor's responsibility to move or rig all GFM/GFE from the point of delivery to the point of storage (if necessary) and then to the point of use.

3.9.5 At the end of the contract, the Contractor shall turn over to the Coast Guard any and all GFM/GFE which was not installed under the terms of the contract.

3.10 SANITARY FACILITIES

3.10.1 Sanitary facilities for Contractor personnel shall be Contractor's responsibility; Contractor's sanitary facilities shall be separate & distinct from sanitary facilities used by vessel personnel. During any period that any or all of the vessel's head facilities are unavailable for use due to Contractor's performance under this contract, the Contractor shall provide clean, sanitary replacement facilities.

3.10.2 If at any time during the performance of the contract, Contractor work will place vessel sanitary facilities out of service, the Contractor shall provide temporary replacement facilities. The minimum replacement facility for up to 18 crew members displaced shall be hot and cold running water with a minimum of 2 showers, 2 sinks, 2 toilets, and 1 urinal located no further than two hundred feet from the vessel's gangway. Facility shall be equipped with electrical lighting and power outlets (110 VAC with ground fault circuit interrupters, GFCI's) for powering of electrical appliances (e.g., blow dryers). If more crew members are displaced, the replacement facilities shall be increased in direct proportion to this ratio. If the crew contains members of both sexes, suitable separate facilities shall be provided for men and women in proportion to their numbers in the crew. The Contractor shall maintain the facilities in a clean and sanitary condition at all times.

3.11 SMOKING AND TOBACCO PRODUCTS

3.11.1 Smoking and use of tobacco products aboard the Vessel or in Vessel office space is prohibited. Exceptions may be permitted if in strict compliance with Vessel rules and regulations (which may include designated smoking time/area).

3.12 CONTRACTOR SERVICES

3.12.1 The Contractor shall provide all services required by the Contractor for the completion of work. These services include but are not limited to electrical power, compressed air, steam, crane services, garbage and refuse, phones, office space, and portable toilet facilities. These services are for the Contractor's use only. Services required by the vessel are found in the "Temporary Services" item of the specification. Regarding crane services, several Coast Guard facilities have weight restrictions at some piers or berths. Notify the COTR seven days in advance of desired lift to coordinate lift, crane size, rigger locations, etc.

3.13 CHANGE ORDER PRICING PROPOSALS

3.13.1 Change orders will be handled in accordance with the terms and procedures spelled out in the contract. Nothing in this section shall be construed to supersede the official contract document.

3.13.2 Change order pricing proposals for monetary deviations from the specification, such as work requests and quick chits, shall be submitted to the KO in electronic format.

3.13.3 The price proposal routing slip submitted by the contractor shall contain, at a minimum, the following information:

3.13.3.1 The work request or quick chit the proposal is in reference to.

3.13.3.2 A labor hour breakdown for the work requested, broken out by task and subdivided by trade. Requests for overtime shall be clearly delineated.

3.13.3.3 A summary of material, travel, and other miscellaneous costs broken out by line item or type of cost.

3.13.3.4 A summary of sub-contractor costs, including a quote or other documentation from the subcontractor.

3.13.3.5 Profit or G&A added to any of the above.

NOTE: The amount of profit added, the items against which profit will be applied, and whether G&A is applied against change orders is specifically outside the scope of this section.

3.13.3.6 The final price proposal.

3.13.3.7 The authorized submission authority.

3.13.4 A sample form, which conforms to all of the above requirements, is available in electronic format from the Coast Guard upon request.

4 WORK CONTROL

4.1 TAG-OUT PROCEDURES

4.1.1 To prevent injury to personnel and/or damage to ship systems equipment tag-outs must be properly conducted. Ship's force will work closely with the Contractor to ensure tag-outs are done in a thorough and efficient manner as outlined below and in more detail in COMDTINST 9077.1, Equipment Tag-out Procedure.

4.1.2 Tag-Out Establishment

4.1.2.1 Prior to start of work on this Item, notify the Coast Guard Inspector in writing of equipment, systems, circuits, components, piping, and valves that require isolation so that tag-outs can be accomplished as required by COMDTINST 9077.1, Equipment Tag-out Procedure.

4.1.2.2 Ship's Force personnel will position equipment and install tags when tag-out of equipment, systems, circuits, components, piping, or valves as required.

4.1.2.3 The Ship's Authorizing Officer (normally the Engineer of the Watch) and the Repair Activity (Contractor's) Representative shall each verify that the tag-out is sufficient to prevent operation of equipment, systems, circuits, components, piping, or valves from all stations that could exercise control. Tags shall also be hung as required by COMDTINST 9077.1, Equipment Tag-out Procedure, paragraph 1.d to control the status of non-permanent jumpers, locking devices, seals, blank flanges, relief valve gags, or similar safety devices.

4.1.2.4 A Contractor's representative shall also verify that each tag is attached to the proper component and that it is in the condition required by the tag-out record sheet. This verification shall be made by witnessing the actions of the Ship's Force member posting or checking the tags and observing devices such as valve position indicators, operating handles, etc.

4.1.2.5 A Contractor's designated representative shall sign and identify his company on each ship's tag-out record sheet and tag prepared to support the Contractor's work.

4.1.3 Tag-Out Clearance

4.1.3.1 To facilitate prompt removal of tags, the Contractor shall notify the Coast Guard Inspector immediately when the Contractor's work is complete and the affected system, piping, or circuit is ready for activation.

4.1.3.2 Tags shall be cleared and removed in accordance with COMDTINST 9077.1, Equipment Tag-out Procedure, before the equipment is operationally tested or operated.

4.1.3.3 The Ship's Authorizing Officer and the Repair Activity (Contractor's) Representative shall each verify that the work necessary to clear a tag-out has been completed prior to authorizing removal of the tags. Both parties shall concur to clearing the tag-out by signing the ship's tag-out record sheet.

4.1.3.4 Ship's Force personnel will remove the tags so authorized for clearance.

4.2 SAFETY REQUIREMENTS

4.2.1 The Contractor shall comply with and ensure compliance to the following for operations which may affect Government personnel or property: 29 CFR Part 1915, "Occupational Safety and Health Standards for Shipyard Employment", 29 CFR Part 1910, "Occupational Safety and Health Standards", and 29 CFR Part 1926 "Safety and Health Requirements for Construction".

4.2.2 The following are deficiencies commonly encountered on safety inspections and are therefore emphasized here:

4.2.2.1 Anti-backflash control valves are required on all welding rigs (NFPA 51).

4.2.2.2 Scaffolds and/or lifelines are required when working above five feet. 29 CFR 1910 and 1915 cover this in detail. The following are commonly encountered problem areas:

4.2.2.2.1 Scaffolds require standard 42" high rails & midrails and 4" toeboards.

4.2.2.2.2 Planking must be scaffold-grade and completely cover the area between the railings and the ship.

4.2.2.3 Lifelines, body harnesses and lanyards are required wherever standard rails are not feasible. Lines must be kept taut, never allowing a fall of greater than six feet.

4.2.2.4 Lifelines must be attached above the worker.

4.2.3 Gear and equipment for rigging and lifting shall be in good working condition and operated according to the regulations set forth in 29 CFR 1915.111-116 and 29 CFR 1910.184. Proper safety precautions shall be practiced in the use of tag lines, mousing of hooks, and moving loads. In addition to the above requirements, all cranes used for work on the vessel or for handling GFM/GFE shall have a current weight handling certification in accordance with local, state and federal laws.

4.2.4 Tools and related equipment are addressed in 29 CFR 1915 Subpart H. Of particular concern is the use of ground fault circuit interrupters (GFCI) with power tools and the use of double insulated power tools. All shore supplied power circuits shall be protected by GFCI'S and have a grounding circuit back to shore. In addition, all power tools shall be approved by Underwriters' Laboratories, or by other testing laboratories approved by the Contracting Officer and either be double insulated or have a grounded circuit.

4.2.5 Personnel protective equipment must be maintained and used in accordance with 29 CFR 1915.151-160.

4.2.5.1 Where personnel exposures can not be maintained below the PEL using appropriate engineering controls, the Contractor shall provide all Contractor personnel with appropriate respiratory protective equipment or other protective equipment specified by the manufacture or where the Contractor/Contractor's industrial hygienist has determined that exposures could exceed the PEL. The Contractor shall also ensure personnel are properly protected

from sensitizing agents/conditions reported by the manufacturer in the Material Safety Data Sheets. These operations include, but are not limited to spray painting and grinding. Selection of respiratory protective equipment should be based on sound industrial hygiene sampling data for the material being worked. Airline hose masks or Self Contained Breathing Apparatus (SCBA) shall be provided to all personnel conducting abrasive blasting or confined space operations, unless an industrial hygienist has determined that exposures can be maintained below the PEL. In addition, respiratory protection for all work which could be immediately dangerous to life and health must consist of either an SCBA or a airline hose mask with an escape bottle as a designed component of the mask assembly.

4.2.5.2 Air line respirators shall be fitted with a pressure regulating valve, a filter which will remove oil, water, and rust particles, and a carbon monoxide alarm. The air intake shall be from a source free from all contaminants, such as the exhaust from internal combustion engines, and air must meet Grade D.

4.2.5.3 Safety harnesses shall be equipped with lifelines which are secured with a minimum of slack when in use. Lifelines must not permit a drop of greater than six feet or contact with any lower level.

4.2.6 Confined space entry requires initial gas free certification by a Marine Chemist in accordance with 29 CFR 1915. The Contractor shall be responsible for monitoring and maintaining the "safe" condition during the entire time work is being performed. Monitoring shall be conducted by a NFPA certified Marine Chemist or a Competent Person. As a minimum, test/certification shall be made before each work shift or daily, whichever is more frequent, and duly recorded on all required certificates.

4.2.7 The Contractor shall provide to the vessel Material Safety Data Sheets for all hazardous materials used under this contract (including petroleum products), at least two working days prior to its use, if not previously submitted per paragraph 3.3. These include, but are not limited to, paints, solvents, cleaners, and abrasive blasting grits.

4.2.8 The Contractor shall ensure paints, solvents, etc., used in, on or around the vessel are used in a manner which prevents personnel exposure to concentrations of vapors exceeding Permissible Exposure Limits (PELs), or Threshold Limit Values (TLVs) for chemicals for which PELs are not listed in OSHA standards.

4.2.9 Each fuel and gas system supplied from shore shall be arranged to be secured by a valve located off the ship and marked to show its purpose. When not in use, fuel and gas hose valves shall be secured at the manifolds and the hoses pulled back to the open deck. Unused manifold valves shall be capped.

4.2.10 The Contractor shall control abrasive blast grit sufficiently to prevent exposure to personnel at or greater than Permissible Exposure Limits (as defined by OSHA). Ensure abrasive blast grit does not contain free silica.

4.2.11 Diving operations must be accomplished in accordance with the requirements of 29 CFR 1910.401 to 440 including appendices. No person may fill more than one assignment if it an emergency response or other incident may require complete dedication to one of the tasks.

4.3 QUALITY CONTROL

4.3.1 The Contractor shall implement the quality control (QC) program submitted in paragraph 3.4.9. Quality assurance is the sole responsibility of the Contractor. The COR may delegate inspection responsibilities to members of the vessel's crew. The designated inspectors monitor the progress of work done by the Contractor. If, during the performance of work the Coast Guard Inspectors witness work that fails to meet the specifications, work that is otherwise unsatisfactory, or conditions which may lead to an unsatisfactory end product, the inspectors will alert the COR who will advise the Contractor informally of the deficiency. If the deficient work is not corrected within a reasonable period of time (as approved by the COR), the COR will officially alert the Contractor via a Contract Deficiency Report. The COR will initiate the report (a sample report may be found at http://www.uscg.mil/mlcpac/mlcp/Eng%20Support/mlcpv/files/platform_support/Arrival_Agenda_Pkg_Form.doc) and submit it to the Contracting Officer with copies to the cognizant NESU and MLCPAC(vr). The Contracting Officer will forward the original to the Contractor.

4.4 INTERFERENCES

4.4.1 The prices offered shall include the cost of performing all the necessary removal, relocation, and/or reinstallation of ship's structure, materials, and equipment in connection with the work. The fact that an interference is not shown on a plan or specifically identified in the specification item is not justification for a contract change. A physical check of each job aboard the vessel prior to bidding is strongly encouraged.

4.4.2 Removal and Reinstallation of Interferences. The Contractor shall remove and reinstall all interferences and obstructions necessary to complete the required work without regard to whether interferences are indicated under specification work items. This may include the removal of machinery, piping, ducts, wiring, insulation, structure and anything else which interferes with the proper accomplishment of a work item. Prior to being disturbed or removed and in the presence of the Coast Guard Inspector, the Contractor shall operationally test each interference reporting by Condition Found Report any existing operational defects or deficiencies. While awaiting reinstallation and restoration, the Contractor shall maintain and protect interferences. When determined to be in the best interest of the Coast Guard & the Contractor and upon Coast Guard approval, interferences may be modified or altered and returned to essentially the same configuration and condition. They are then to be retested in the presence of the Coast Guard Inspector to verify proper operation. Otherwise, upon completion of required work, the Contractor shall restore interferences to their original configuration and condition, and in the presence of the Coast Guard Inspector retest for proper operation.

4.5 EXTERIOR/COMPARTMENT PRESERVATION/PROTECTION

4.5.1 To prevent damage arising from the performance of the contracted work, it shall be the responsibility of the Contractor to provide adequate protection to the vessel or any government property in areas where the work under items of these specifications is to be accomplished. Any damage resulting from the Contractor's failure to adequately protect the vessel or government property shall be repaired by the Contractor at no charge to the government.

4.5.2 Compartment Cleaning and Finishing – When the Contractor enters a compartment for the accomplishment of work, the Contractor is to notify the Coast Guard Inspector and jointly inspect the compartment prior to starting the work. All areas in way of the Contractor's work, whether or not directly repaired or altered, are to be restored to as clean and ship shape condition on completion of the work as when work was started. For example, the decks leading to work areas are to be cleaned and, if required due to unusual wear by the Contractor's crew, the work sections are to be either refinished or renewed so that they match the original condition of the decks.

4.5.3 Protective Coverings – All machinery, equipment, deck covering, insulation, and open vent terminals exposed to dust or drifting particles resulting from work under this contract shall be adequately protected. Methods of protection include, but are not limited to fire-retardant blanket (if required due to sparks or slag), canvas, or plastic coverings. All open vent intakes shall be completely covered with air intake screens fitted with 20 pores per inch polyester or polyurethane foam filtering material and shall be maintained by the Contractor to prevent excessive air restriction and/or damage to ventilation motors. Any damage resulting from failure by the Contractor to provide adequate coverings shall be repaired at the Contractor's expense. It shall be the responsibility of the Contractor to provide adequate protection to all deck covering in areas where the work under items of these specifications is being accomplished and on all main access routes to these areas. Acceptable protective covering will be either heavy cardboard, masonite (fiberboard), or plywood installed in sufficient quantities to adequately protect existing deck covering. Any protective coverings which are damaged during the course of work shall be immediately repaired or renewed by the Contractor.

4.5.4 Glass – All glass (port lights, windows, etc.) adjacent to areas interior and exterior where abrasive blasting, burning, or welding is required or accomplished shall be covered to prevent scarring and damage.

4.5.5 Ragged Edges – Care is to be taken to smooth off all ragged edges or burned off edges by grinding or filing to leave a smooth surface. Removal of fixtures, equipment, plating, piping, and fittings shall be made clean to the root and finished off. Where pipes, cables, and fittings are removed, the hole shall be blanked off flush with welded plates of like material and thickness.

4.5.6 Bracket and Supports – All pipes, cables, duct work, installed furniture, and equipment shall be bracketed, supported, and/or secured so as to carry the weight, prevent excessive vibration, and withstand inertia forces resulting from rolling and pitching.

4.5.7 Dirt/Debris/Trash – At the end of the work day, the Contractor shall remove all dirt, debris, trash, grinding dust and excess material from the vessel in areas and access to areas where work is being accomplished. The standard for this daily clean up is that the decks will be broom/vacuum clean, no liquids will be left standing on decks, and items which will not be further used for the work will be removed from the vessel. The goals behind this requirement are to remove fire hazards, to improve access within the vessel for routine and emergency movement of personnel, and to preserve the material condition of the vessel.

4.5.8 Painting

4.5.8.1 All burned or scarred areas, new structure, or plating resulting from any work performed by the Contractor shall be cleaned and repainted in accordance with this specification, the Coatings and Color Manual (Commandant Instruction M10360.3), or vessel paint schedule in that order of priority. The Coast Guard Inspector will inspect surface preparation prior to painting to assure conformance with specifications and COMDTINST M10360.3. Prime bare metal to prevent rusting. Re-preparation due to rust bloom shall be the responsibility of the Contractor at no charge to the Government.

NOTE: Local VOC restrictions may reduce number of paint system options permitted by the Coatings and Color Manual (Commandant Instruction M10360.3). Ensure VOC limits of painting systems used comply with local (where work is performed) requirements.

4.5.8.2 All steel and aluminum installed under this contract shall, prior to installation, be free of mill scale and corrosion. Except where otherwise specified, all steel shall be properly primed with one liberal coat of high build epoxy primer in accordance with the Coast Guard Coatings and Color Manual (COMDTINST M10360.3).

NOTE: Apply all coatings in strict compliance with manufacturer's application instructions.

4.5.8.3 Where new paint is to be merged into the existing paint system, feather into the surrounding paint. Apply paint to surfaces only if they are dry and free of sand, dust, grease, or any foreign material. Apply paint only if surface is five or more degrees F. above the dew point.

4.5.8.4 Paint must have an age less than the manufacturer's recommended shelf life. The Contractor shall supply certified laboratory reports showing product, batch number, and date of manufacture for each batch of paint to the designated Coast Guard Inspector.

4.5.8.5 Store paint for at least 48 hours prior to painting so it is maintained between 65 and 85 degrees F. Issue paint from storage so that it is applied before the paint temperature drops below 50 degrees F. Do not apply paint if the paint temperature is below 50 degrees. When ambient temperature drops below 50 degrees F. or wet weather is encountered, the Contractor shall ascertain whether the paint manufacturer recommends any substitutions of paint, alteration of paint formulas, or modified application instructions. Any substitution of paint is subject to approval of COR. Adhere to all of the manufacturer's recommendations.

4.5.8.6 All paints shall meet the environmental standards for the locale at which they are applied. This includes, but may not be limited to, meeting volatile organic compound (VOC) limits for coating systems.

4.5.8.7 Quality assurance inspections are required for all painting done in accordance with individual work items, and are to be recorded the Paint Log. The Paint Log will be filled out by the Contractor, verified by the Coast Guard Inspector and retained by the vessel for hull history. The forms may be downloaded from the Procurement section of the following Coast Guard web site:
http://www.uscg.mil/mlcpac/mlcp/Eng%20Support/mlcpv/index.htm.

4.5.9 Fluid Containers & Piping. The Contractor is responsible for containment, clean up, and disposal of any fluid spilled during course of their efforts (e.g., includes spills resulting from mishandling, disassembly & piping removal).

4.6 HOTWORK/WELDING

4.6.1 The Contractor and Coast Guard Inspectors shall comply with the hot work, atmospheric testing, ventilation, and safety precaution requirements contained in 29 CFR Part 1915, "Occupational Safety and Health Standards for Shipyard Employment", and Naval Ships' Technical Manual, Chapter 074, Volume 3, Gas Free Engineering.

4.6.1.1 The Contractor shall certify that a safe atmosphere exists in and about a compartment before starting any work which may produce the heat of ignition, sparks, or flames. The Contractor shall pump down, wipe up, ventilate, or take any other action required to make the compartment safe for personnel and the work to be performed. To facilitate hot work and upon Contractor request, Coast Guard will pump down bilges, tanks, and voids to their lowest level with installed pumping systems, and shift and/or off-load fuel. The Contractor shall be responsible for any further fluid removal below installed pump's low suction. Unless otherwise provided in the specifications, further fluid removal for any other non hot work purpose (e.g., weight distribution for drydocking) shall be the Contractor's responsibility.

4.6.1.2 Initial gas free certification shall be conducted by a NFPA certified Marine Chemist, except in such cases where a Competent Person is authorized to conduct certification in accordance with 29 CFR 1915. All tests shall be conducted with equipment meeting National Fire Protection Association standards. One current copy of the Gas Free Certificate shall be given to the vessel's Engineer, a copy shall be posted on the ship's quarterdeck, and a copy shall be posted adjacent to all accesses of the space, void, tank, or area where work is being performed.

4.6.1.3 The Contractor shall be responsible for monitoring and maintaining the "safe" condition during the entire time work is being performed. Monitoring shall be conducted by a NFPA certified Marine Chemist or a Competent Person. As a minimum, test/certification shall be made before each work shift or daily, whichever is more frequent, and duly recorded on all required certificates.

4.6.2 NO HOTWORK SHALL BE STARTED WITHOUT THE PERMISSION OF THE VESSEL'S OFFICER OF THE DECK (OOD). Permission to proceed with hot work shall be requested at least 24 hours in advance of planned hot work. The vessel's Quarterdeck Watch usually maintains a hot work log to ensure the OOD knows of ongoing work that can affect the safety of the vessel, where the hot work is taking place, whether a gas-free certificate is required, and whether a firewatch has been assigned. Unless otherwise indicated in the specifications, the Coast Guard will provide all firewatch personnel.

4.6.3 Unless otherwise specified, all welding and hot work shall be in accordance with MLCPAC Standard Specification 074, Welding and Allied Processes. This specification includes requirements for welders, fire watches, equipment, procedures, and safety precautions.

4.6.4 The Contractor shall submit a list of qualified welders, including welder's name, type of qualification, and date of last qualification test, to the COR at the Arrival Conference. All welders will check in at the vessel's Quarterdeck with the Officer of the Deck and have a Coast Guard firewatch assigned prior to commencing any "Hot Work". Prior to arc welding, the Contractor shall ground the hull of waterborne vessels fore and aft in accordance with Naval Ships' Technical Manual, Chapter 074, Volume 1, Welding and Allied Processes.

4.7 MAINTENANCE OF WATERTIGHT INTEGRITY

4.7.1 Upon completion of any work on a water or oil tight boundary (including hull), perform an "air hose test" (also known as liquid film bubble emission leak test) along entire length of affected boundary. This test shall be in addition to any NDT which may be specified. Apply a solution consisting of equal parts of liquid soap or detergent and glycerin, and 4.5 parts water, to one side of affected boundary, while applying air pressure or a jet of dry air to opposite side of affected boundary. For tanks and voids, pressurize compartment to 2 psi. For watertight compartments which are not tanks or voids, direct a jet of dry air on affected boundary. In all cases the nozzle shall

be as close as possible to item under test and the stream directed against all compartment boundaries, plate connections, closures, fittings and boundary penetrations in the manner most likely to reveal leaks. The nozzle diameter shall be 3/8 inch minimum and the pressure at the nozzle shall be 90 psi minimum. Closely inspect low pressure (solution) side of affected boundary in presence of the Coast Guard Inspector. Defects/discrepancies will appear as small bubbles in soap solution. Correct defects/discrepancies and retest. Repeat until a satisfactory bubble emission test is obtained.

4.8 SCRAP/SALVAGE

4.8.1 The COR shall determine which existing materials removed or disconnected are of scrap/salvage value to the Government. Though not indicated or specified for reuse in the new work, those materials shall remain the property of the Coast Guard. The material shall be placed on the deck of the vessel or Government truck, or packed/palletized and shipped by the Contractor (funded by the Coast Guard) as directed by the COR. Material not identified by the COR for retention shall be designated as scrap. The Contractor shall store scrap at no additional cost to the Government and dispose of the scrap upon completion of the contract. The Contractor shall submit a proposal, supported by an invoice from a scrap dealer, to credit the Government for the value of the scrap.

4.9 LABEL PLATES/TAGS

4.9.1 The Contractor shall provide label plates for all new and/or redesignated access fittings, compartments, electrical and electronic equipment and fittings, ventilation blowers and systems, valves, and any other equipment and/or fittings requiring them as indicated on installation drawings. The Contractor shall also provide label plates where they would normally be required as indicated on similar listings in the ship's label plate list. In the absence of guidance regarding the inscriptions, the plates shall be engraved with the inscriptions provided by the COR.

4.10 ABRASIVE BLAST & PAINT OVERSPRAY

4.10.1 The Contractor shall ensure that all abrasive blast material, paint particle/waste, and paint overspray is managed in accordance with all applicable federal, state and local environmental/personal exposure requirements and is contained in the work area, and not allowed to enter the atmosphere or water. This prevention may include, as necessary, the use of vacuum-blasting techniques, the construction of temporary shelters, and covering all openings, open areas, and other possible exits, including, but not limited to, scuppers, railings, freeing ports, ladders, and doorways. The Contractor shall install protective covering on all vessel carpeting and tile when major grit blasting (as determined by the COR) is to be performed during the contract.

4.10.2 Blast material used shall meet the environmental profile specified in Paragraph 3.4.12 (Hazardous Waste Minimization) of Mil-A-22262(SH).

4.11 DISASSEMBLY & INSPECTION ACTIONS

4.11.1 Any additional work resulting from required disassembly and inspection actions is typically disruptive and may cause availability schedule delays. To minimize adverse impact of such work, all required disassembly and inspection actions shall be accomplished before 25% of availability contract period has elapsed. Production schedule submitted to Coast Guard shall clearly show & schedule all disassembly & inspection actions.

4.12 CHANGE ORDER PRICING PROPOSALS

4.12.1 Change orders will be handled in accordance with the terms and procedures spelled out in the contract. Nothing in this section shall be construed to supersede the official contract document.

4.12.2 Change order pricing proposals for monetary deviations from the specification, such as work requests and quick chits, shall be submitted to the KO in electronic format.

4.12.3 The price proposal routing slip submitted by the contractor shall contain, at a minimum, the following information:

4.12.3.1 The work request or quick chit the proposal is in reference to.

4.12.3.2 A labor hour breakdown for the work requested, broken out by task and subdivided by trade. Requests for overtime shall be clearly delineated.

4.12.3.3 A summary of material, travel, and other miscellaneous costs broken out by line item or type of cost.

4.12.3.4 A summary of sub-contractor costs, including a quote or other documentation from the subcontractor.

4.12.3.5 Profit or G&A added to any of the above.

NOTE: The amount of profit added, the items against which profit will be applied, and whether G&A is applied against change orders is specifically outside the scope of this section.

4.12.3.6 The final price proposal.

4.12.3.7 The authorized submission authority.

4.12.4 A sample form, which conforms to all of the above requirements, is available in electronic format from the Coast Guard upon request.

5 ACCESS TO VESSEL

5.1 FUEL OIL OFFLOAD/ONLOAD

5.1.1 The Coast Guard reserves the right to call in an outside contractor to offload/onload fuel oil to the vessel while at the Contractor's facility. The Coast Guard will coordinate the fuel oil transfer evolution with the Contractor to ensure that fuel oil can be offloaded/onloaded prior to conducting any tests or operations that require the vessel to be at a full load condition.

5.2 WORK BY SHIP'S FORCE

5.2.1 The Coast Guard reserves the right for the vessel crew to perform routine maintenance or ship's work and to check all clearances and readings taken on equipment by the Contractor throughout the contract period. The vessel's crew work will not interfere with the Contractor in the execution of the contract. The vessel will refer to the Contractor's Production Control submittals in planning such work to prevent interferences.

5.3 SECURITY/CONTROLLED ACCESS

5.3.1 The Commanding Officer will prevent access to certain "Controlled Access" compartments by individuals with no operational requirement for access and no security clearance. The Contractor shall notify the Commanding Officer of the vessel, in writing, of the names of the Contractor personnel who will be performing work in controlled access compartments. The Contractor shall ensure its employees do not enter controlled access compartments without prior authorization. The procedures for access will be specified by the vessel. Generally, the vessel will prepare the compartment so that Contractor personnel can enter and work.

5.4 TECHNICAL REPRESENTATIVES

5.4.1 Refer to the "Access To Vessels" clause contained in Section H of this contract.

6 ENVIRONMENTAL

6.1 DEFINITIONS

6.1.1 Solid Waste: Rubbish, debris, sanitary waste, and other discarded solid materials resulting from industrial, commercial, and agricultural operations, and from community activities.

6.1.2 Rubbish: A variety of combustible and noncombustible wastes such as paper, boxes, glass, crockery, metal, lumber, cans, and bones.

6.1.3 Debris: Includes combustible and noncombustible wastes, such as ashes, waste materials that result from construction or maintenance and repair work, leaves, and tree trimmings.

6.1.4 Chemical Wastes: Includes salts, acids, alkalis, herbicides, pesticides, and organic chemicals.

6.1.5 Sanitary Wastes:

6.1.5.1 Sewage: Wastes characterized as domestic sanitary sewage.

6.1.5.2 Garbage: Refuse and scraps resulting from preparation, cooking, dispensing, and consumption of food.

6.1.6 Asbestos and Asbestos Materials: Asbestos means actinolite, amosite, antophyllite, chrysotile, crocidolite, and tremolite. Asbestos material means asbestos or any material containing asbestos such as asbestos waste, scrap, debris bags, containers, equipment, and asbestos-contaminated clothing consigned for disposal. Friable asbestos material means any material that contains more than one percent asbestos by weight and that can be crumbled, pulverized, or reduced to powder, when dry, by hand pressure.

6.1.7 Oily Waste: Includes petroleum products and bituminous materials.

6.1.8 PCB (Polychlorinated Biphenyls): Toxic and non-biodegradable materials used extensively under trade names, such as Pyranol or Askarel, as insulating cooling fluids in capacitors and transformers.

6.1.9 Hazardous Material (HM): Chemicals defined by OSHA 29 CFR 1915.1200 or under the U.S. Department of Transportation (DOT) regulations (Title 49 CFR Parts 100 through 199) which are determined by the Secretary of Transportation to present risks to safety, health, and property during transportation. The DOT regulations include requirements for shipping papers, package marking, labeling, transport vehicle placarding, and training of personnel handling hazardous materials.

6.1.10 Hazardous Substance: Substances defined under the Clean Water Act and CERCLA as chemicals which are harmful to aquatic life or the environment and are regulated, if spilled or otherwise released to the environment. The EPA has designated “reportable quantities” for each hazardous substance under CERCLA. If an amount equal to or greater than the reportable quantity of a hazardous substance is released to the environment, that spill must be reported.

6.1.11 Hazardous Waste (HW): Substances which are hazardous and have been discarded are regulated as hazardous waste under RCRA or State Health and Safety Codes and their implementing regulations. A waste is hazardous if it meets certain levels of reactivity, ignitability, corrosivity, or toxicity, or is otherwise listed as a hazardous waste in Title 40 CFR Part 261 or in the respective State Health and Safety Code or Code of Regulations.

> **NOTE:** In addition to the usual Title 40 CFR Part 261 Hazardous Wastes, California manages Waste Oil and Zinc in certain concentrations as Hazardous Waste. Debris from zinc paint removal may be regulated. See the California Code of Regulations, Title 22 , section 66261.24

6.1.12 Paint Containing Lead: Paint or other similar surface coating material containing detectable levels of lead or lead compounds. The definition for Paint Containing Lead is the same as that for lead-based paint. Definitions for lead-based paint found in other documents, do not apply to work under this contract.

6.1.13 Post-consumer Material: A material or finished product that has served its intended use and has been diverted or recovered from waste destined for disposal, having completed its life as a consumer item. Post-consumer material is a part of the broader category of "recovered material."

6.1.14 Recovered Material: Waste materials and byproducts which have been recovered or diverted from solid waste including post-consumer material, but such term does not include those materials and by-products generated from, and commonly reused within, an original manufacturing process.

6.2 APPLICABLE REGULATIONS

6.2.1 The statutes and regulations listed in the References section of these General Requirements form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

6.3 TEST RESULTS

6.3.1 Submit all test results taken as required by Section 6 of the General Requirements to the Contracting Officer or COR.

6.4 PERMITS & CERTIFICATES

6.4.1 Submit copies of all permits and certificates required for performance of this contract at the arrival conference.

6.5 HAZARDOUS MATERIAL IDENTIFICATION

6.5.1 Submit Material Safety Data Sheets (MSDS) for any materials defined as hazardous under the most current revision of 29 CFR 1910.1200. One copy of each MSDS shall be submitted to the Contracting Officer's Representative no later than the delivery date of the product. Two copies shall be submitted to the Contracting Officer.

6.6 KNOWN HAZARDS

6.6.1 (See note in paragraphs 6.9.1.6 and 6.9.1.7 for required contract proposal hazard assumptions.):

6.7 SUBMITTALS

6.7.1 Environmental Management Plan: The Contractor shall have a written compliance program (the plan) outlining how the Contractor handles hazardous materials, petroleum products, hazardous substances, and hazardous waste. The plan shall comply with all local, state, and federal laws and regulations when handling hazardous materials and hazardous or other wastes. For work involving the hazards of lead, the compliance program shall be in accordance with 29 CFR 1915.1025. The program shall include, but is not limited to, the following elements as appropriate: a general storage site plan, methods used to analyze whether generated material (blasting debris, paint waste, etc.) is hazardous, any hazardous waste licenses and permits, air district permits, spill response plans (see paras. 27.14 and 27.15), any permits required by the National Pollutant Discharge Elimination System, 33 U.S.C. 1342, air district permits, noise control plan, identification of hazardous waste and material. The Coast Guard has the right to require removal from the contract any subcontractor whose performance fails to comply with these and any other environmental laws and regulations or who fails to provide appropriate evidence of compliance with them. NOTE: a general format outline of an acceptable Environmental Management Plan can be found on our internet site:

http://www.uscg.mil/mlcpac/mlcp/Eng%20Support/mlcpv/files/procurement/ENVIRONMENTAL_MANAGEMENT_PLAN.doc.

6.7.2 Job Specific Statements of Procedures <if required>

6.8 STRICT COMPLIANCE WITH REGULATIONS AND STATUTES

6.8.1 Provide and maintain environmental protection during the life of the Contract to control pollution or to correct conditions that develop during performance of the contract. Comply with all Federal, State, and local laws and regulations pertaining to water, air, and noise pollution.

6.9 CONTROL & DISPOSAL OF WASTES

6.9.1 With the exception of materials specifically indicated or specified to be salvaged for reuse, and turned over to the Government, all non-hazardous wastes and demolished materials become the Contractor's property and shall be removed from the job site daily. Shipboard, store hazardous waste in corrosion resistant containers labeled to identify type of waste and date filled.

6.9.1.1 Hazardous Waste Disposal (for work performed at a Coast Guard facility): Any hazardous waste generated by work under this contract is the responsibility of the Contractor and shall be labeled and packaged in 49 CFR approved containers and in accordance with all other applicable Federal, state, and local laws and regulations. Along with the Government, the Contractor is contractually considered the co-generator of any hazardous waste. The Government shall make available its facility's EPA generator ID number for manifesting of hazardous waste. The Contractor shall identify, arrange and be responsible for the turnover of any hazardous waste, within the confines of the Coast Guard shore facility, to the facility's hazardous waste coordinator. The ship's hazardous waste coordinator shall be notified prior to any transfers of hazardous waste from ship to shore. The Contractor shall comply with applicable parts of 40 CFR 262. A manifest of hazardous waste shall be prepared by the Contractor and signed by the Government Hazardous Materials/Hazardous Waste Coordinator at the facility (hereinafter "HM/HW Coordinator"). The Contractor shall contact the HM/HW Coordinator for turnover of any hazardous waste. No Contractor or Subcontractor shall have the authority to sign a hazardous waste manifest using the facility's EPA generator ID number or remove contract generated hazardous waste from the Coast Guard facility without COR or Contracting Officer approval.
NOTE: Coast Guard facilities do not have Facilities Response Plans (see 33 CFR 154 Subpart F). It is the Contractor's responsibility to furnish the Facility Response Plan (FRP) when required for over the water liquids transfers to and from vessels. This requirement is applicable to transfers to/from vessels with an oil/fuel capacity of 250 barrels or more.

6.9.1.2 HM/HW Spill Response: Spill response shall follow the requirements of 29 CFR 1910. The Contractor shall be responsible for all Contract/Availability related spills. This contractual authority to assume cleanup direction is in addition to, and does not affect, the Coast Guard's regulatory authority to initiate federal spill control and cleanup operations under the National Oil and Hazardous Substances Contingency Plan, 40 CFR 300. Any Contractor provided spill response deemed inadequate by the Coast Guard will then come under the direction of the Coast Guard and the Coast Guard will be reimbursed by the Contractor for their expenses. Contractor's responsibility includes removal of spill response waste from the work site upon completion of the cleanup. The transfer of hazardous waste shall be handles as noted in 6.9.1.1. For oil and hazardous material spills which are reportable under Federal, State, and local laws and regulations, the Contractor shall immediately notify the vessel's Hazardous Waste Coordinator and Contracting Officer along with the required agencies.

6.9.1.3 Manage and dispose of petroleum products and petroleum contaminated water in accordance with procedures meeting Federal, State, and local laws and regulations. Comply with 40 CFR 761 for removal and disposal of PCB containing articles.

6.9.1.4 Refrigerants: The Contractor shall at all times adhere to the requirements of the Clean Air Act, 42 U.S.C. 7401 et seq., and any implementing regulations. The Contractor may not knowingly vent or otherwise knowingly release or dispose of any Class I or Class II refrigerants, as defined in 42 U.S.C. 7671a, into the environment. The

Contractor shall ensure that when servicing small appliances (refrigerators, freezers, water coolers etc.), high pressure systems, or low pressure systems, all servicing and recovery requirements for the appropriate level of equipment are met. Whenever reclaimed refrigerant is used, the Contractor shall provide the Coast Guard Inspector proof that the refrigerant meets the relevant standard of purity. All Contractor servicing technicians must have obtained the required level of Environmental Protection Agency certification necessary to service the equipment (i.e. small appliances, high pressure systems, low pressure systems, etc.) in question.

6.9.1.5 Lead and Chromium: The Contractor shall assume all paint removal operations involve lead-based paint. An adequate survey of the work-area has not been accomplished by the Coast Guard to determine the extent of lead-based paint. The Contractor will be responsible for determining the percentage of operations which involve lead-based paint. Prior to accomplishing any work involving the removal of lead-based paint, the Contractorshall contact the COR or the Contracting Officer and provide copies of the sample results.

6.9.1.5.1 Paint Containing Lead: The Contractor shall comply with all applicable Federal, State, and local laws and regulations regarding paint containing lead, when engaging in lead-based paint activities, or when addressing lead-based paint hazards and disposal. Whenever this contract provides more than one standard for regulating lead-based paint, the Contractor shall comply with the most restrictive law or regulation. Applicable laws or regulations include, but are not limited to: 16 CFR 1303, Ban of Lead-Containing Paint; 29 CFR 1910, Occupational Safety and Health Standards for General Industry; 29 CFR 1915.1025, Lead for Shipyard Employment; 29 CFR 1926.62, Occupational Safety and Health Standards for Construction Industry; 15 U.S.C. 2601, Toxic Substances Control Act, et seq. and the Residential Lead-Based Paint Exposure Reduction Act.

> CAUTION: The inorganic zinc primer specified in COMDTINST M10360.3, Coatings and Color Manual may contain concentrations of lead, but not in excess of 0.06% by weight. COMDTINST M10360.3 specifies inorganic zinc for interior steel surfaces including machinery decks, voids, chain lockers, inaccessible areas, and fire zone bulkheads; exterior steel surfaces including weather decks, work areas, deckplates, superstructures, stack casings, freeboards, and inaccessible areas; and steel items subject to condensation. Additionally, zinc in certain concentrations is a hazardous waste in California. Debris from zinc paint removal may be regulated. See the California Code of Regulations, Title 22 , section 66261.24.

6.9.1.5.2 Lead-Contaminated and Chromium-Contaminated Material Abatement: The Contractor shall not release lead, lead-contaminated or chromium-contaminated materials into the environment. Periodic air monitoring (as appropriate) for lead and/or chromium in the worker's breathing zone shall be performed during the course of any abatement work involving lead/chromium-containing materials. Submit results to the COR or Contracting Officer for review. The Contractor shall dispose of materials containing lead or chromium and likewise contaminated materials in accordance with any applicable hazardous waste laws and this contract. When handling and storing lead or chromium contaminated materials, the Contractor shall be responsible for compliance with 42 U.S.C. 9601-9675, 42 U.S.C. 6901-6991, and all other applicable Federal, state, and local environmental laws and regulations.

> **NOTE**: The Contractor shall propose a price for this effort as if lead abatement procedures will be required for all paint removal requirements. No equitable adjustment will be granted to any contractor for the removal of any paint containing lead or chromium.

6.9.1.6 Asbestos: The Contractor shall assume all removal work involves asbestos. Prior to commencing work, the Contractor shall obtain all required samples to determine the levels of asbestos present (if any) and the personnel protection required. Copies of the sample results shall be provided to the COR prior to commencing work. In no case, will any asbestos be cut or otherwise treated without compliance with the Coast Guard Asbestos Exposure Control Manual (COMDTINST M6260.16). In addition to COMDTINST M6260.16, any asbestos abatement operations must comply with all federal, state and local laws and regulations including 40 CFR 61.150 and 29 CFR 1915.1001; National Emission Standards for Asbestos. Provide all notices to the EPA as required by 40 CFR 61.145 and other applicable state and local agencies prior to commencing asbestos removal work. Whenever this contract provides more than one standard for asbestos abatement, the Contractor must comply with the most restrictive law or regulation. Note that COMDTINST M6260.21 requires full compliance with OSHA Standards in 29 CFR 1910.1200. The Contractor shall provide forty-eight hours written notice to the Contracting Officer before commencing any asbestos work. Should there be any question as to the existence of asbestos in any material which

may be disturbed, the Contractor is responsible for conducting hazard evaluations pursuant to OSHA requirements. The Contractor shall provide the COR with a description, location, and analysis results for all materials samples taken during personnel hazard evaluations before work commences in the affected area. Additionally, asbestos is a hazardous waste in California under certain circumstances, potentially triggering the provisions of sections 6.9.1.1 and/or 6.9.1.2 of this specification. See the California Code of Regulations, Title 22 , section 66261.24.

> **NOTE**: The Contractor shall propose a price for this effort as if asbestos abatement procedures will be required for all removal work. No equitable adjustment will be granted to any contractor for the removal of any asbestos.

6.9.1.7 VOLATILE ORGANIC COMPOUNDS (VOC)–REGULATIONS GOVERNING VOC EMISSIONS AND SOLVENT CONTENT IN PAINTS, COATINGS, SOLVENTS, ADHESIVES AND CLEANERS: The Contractor is required to comply with local VOC laws and regulations and shall have an acceptable VOC compliance plan. The plan shall demonstrate that the use of paints, solvents, adhesives and cleaners comply with local VOC laws and regulations. All required permits shall be obtained, prior to starting work involving VOC's, in the air quality district in which the work will be performed. The compliance plan shall be submitted by the Contractor to the COR prior to the start of work. An acceptable compliance plan shall contain, as a minimum: a listing of each material subject to restrictions in the air quality management district in question, the rule governing its use, a description of the actions which the Contractor will use to comply with the laws and regulations, and any changes in the status of compliance during the life of the contract. Alternatively, if no materials are subject to the restrictions in the air quality management district where the work will be performed, or if there are no restrictions, the compliance plan shall so state.

6.9.1.8 PCB (Polychlorinated Biphenyl) Containing Materials: PCBs (which are known to be hazardous to human health) may be present in various locations on board Coast Guard Vessels. These locations include those which contain non-armored electrical cable manufactured prior to 1982 (typically grey PVC jacketed cable), and in "Chromelock Tape" which may be used with some soft patches, sheathing, pipe hangers and lap-riveted joints. If the presence of PCBs is known or suspected in any area of work, comply with the Toxic Substances Control Act (TSCA), 15 U.S.C. 2601-2692; 40 CFR 761 et seq.; COMDTINST M 16478.1, Hazardous Waste Management Manual; COMDTINST M16478.2, Procurement, Handling, and Disposal of Polychlorinated Biphenyls; and all other applicable federal, state, and local laws and regulations related to handling and disposition.

6.10 DUST CONTROL

6.10.1 Keep dust down at all times, including non-working hours, weekends, and holidays. No dry power brooming is permitted. Instead, use vacuuming, wet mopping, wet sweeping, or wet power brooming. Air blowing is permitted only for cleaning non-particulate debris, such as steel reinforcing bars. No abrasive blasting is permitted unless dust is confined. No unnecessary shaking of bags is permitted where bagged material is used.

6.11 NOISE

6.11.1 Make the maximum use of "low-noise-emission products" as certified by EPA and described at 40 CFR Part 204. Comply with applicable portions of the Noise Control Act (NCA). The Contractor is responsible for complying with all other Federal, state, and local noise control laws and regulations.

6.12 OIL SPILL PLANNING

6.12.1 (Applicable to fixed or mobile facilities transferring oil, including fuel and oily wastes, to or from a vessel with a capacity 10,500 gallons or more.) Transfers of any amount of "oil", as defined by 33 CFR 154.105, between the vessel and the Contractor's facility, or a mobile tank facility (subcontracted or otherwise arranged by the Contractor) are subject to the oil spill response plan requirements of 33 CFR 154.1010 et seq. NOTE: Coast Guard facilities do not have Facility Response Plans (FRP) (see 33 CFR 154 Subpart F). It is the Contrctor's responsibility to furnish the FRP when required for bulk transfers of oil (as defined in the citation above) to or from vessels. The Contractor shall have an approved and current Facility Response Plan for any fixed or mobile facility transferring oil to or from the vessel whether the transfer is done by the Contractor or Subcontractor. A current USCG MSO

COTP-approved Facility Response Plan per 33 CFR Section 154.1017 will be considered acceptable in meeting this requirement. Similarly the Contractor shall have any other applicable Facility Response Plans, required by federal, state, or local requirements. The required plans shall be made available for review by the COR at the arrival conference (See para 3.3).

6.13 USE OF RECOVERED MATERIALS

6.13.1 Vendors shall to the greatest extent possible and at no additional cost to the Coast Guard use recovered materials that meet existing performance standards when performing work under this specification. It is the Government's policy to use, in a cost-effective manner, products composed of the highest percentage of recovered materials practicable without adversely affecting performance requirements or exposing vendor employees to undue hazards from the recovered materials.

ITEM 1: PRODUCTION CONTROL, GANTT BAR CHART PROVIDE

MI_04100_JSP_0506_GENERAL

1 SCOPE

The intent of this item is to prepare a production control chart for accomplishment of the work items. This document shall be updated throughout the availability and furnished to Coast Guard personnel to track the progress of work and to coordinate Government witnessed inspection and testing.

Government Furnished Property: NONE

2 REFERENCES

Coast Guard Drawings: NONE

Applicable Documents:

MLCPAC Standard Specification 041, 1/1/2000; Production Control, Gantt Bar Chart

3 REQUIREMENTS

The Contractor shall provide all labor and material to accomplish the following in accordance with the General Requirements.

3.1 Provide all labor and material to prepare a Gantt chart for work items in accordance with the MLCPAC Std Spec 041. The Gantt charts shall show task interdependency (scheduling logic) for the work items.

3.2 Submit weekly progress reports for the entire availability period and any extensions thereof in accordance with the MLCPAC Std Spec 041.

3.3 The Contractor shall submit two paper copies of the Gantt Chart or electronics copies in one of the following format to the Contracting Officer no later than one week after contract award.

Microsoft Word Format

Microsoft Excel Format

Adobe PDF Format

3.4 The cutter's crew will be berthed off the cutter during the entire availability.

3.5 Inspection and Disassembly Plan:— To minimize adverse impact on the production work, the Contractor shall perform disassembly and inspection as required in the D-Items within initial 25 % of the contract availability. The Gantt Chart submitted to the Coast Inspector shall clearly show and schedule all inspection and disassembly as required in the D-Items.

3.6 All work performed under these specifications that affects navigational or electronics equipment normal operation (powered from the ship service diesel generators) shall be completed no later than 72 hours prior to the scheduled completion date of the availability.

3.7 Coordinate all inspections with the designated Coast Guard Inspector to minimize production delays.

ITEM 2: TANKS (DIRTY OIL & OILY WATER BILGE) CLEAN AND INSPECT

MI_12317_JAH_0908_110B

1 SCOPE

The intent of this item is to clean and inspect the Dirty Oil and Oily Water Bilge Tank(s).

Government Furnished Property: NONE

2 REFERENCES

Coast Guard Drawings:

110B-WPB 85-12, Rev -; Booklet of General Plans (Supercedes 110B-WPB-085-7)

Applicable Documents:

MIL-HDBK-291, Rev -; Cargo Tank Cleaning, 9/26/1986
QQ-N-281 , Rev D(2); Nickel-Copper Alloy Bar, Rod, Plate, Sheet, Strip, Wire, Forgings. And Structural and Special Shaped Sections, 10/23/1985
SAE-AMS-C-6183, Rev -; Cork and Rubber Composition Sheet for Aromatic Fuel and Oil Resistant Gaskets, 12/18/1998

3 REQUIREMENTS

The Contractor shall provide all labor and material to accomplish the following in accordance with the General Requirements:

3.1 GENERAL

3.1.1 The concerned tanks are listed in Table 3.1.A. See the above CG Dwg for the location and arrangement of the designated tank(s).

Table 3.1.A

Cutter	Tank Number	Contents	Capacity (Gallons)	Low Suction (gallons)
110 B	3-27-1-F	Dirty Oil	155	
110B	3-27-2-F	Oily Water	155	

CAUTION

Toxic vapors may exist in tanks. Do not leave the tanks open unless certified “Safe for Personnel – Safe for Hotwork.” Do not allow open flames, sparking electrical apparatus, electric lights, flashlights, or tools that may cause sparks in or near open tanks.

3.1.2 The Contractor shall remove and dispose of all oil, oily water and fuel from tank(s) listed above in accordance with state, local, and federal laws and regulations. The contractor will bid on removing a total of 200 gallons of dirty oil and oily water collectively from these tanks.

3.2 INTERFERENCES

3.2.1 Tag-Outs – Secure, isolate, and tag-out all affected mechanical, piping, and electrical systems in accordance with the General Requirements.

3.2.2 Remove or protect all interferences surrounding the work areas. Obtain verification from the Coast Guard Inspector for protective measures.

3.3 SAFETY

3.3.1 Provide adequate explosion proof lighting to illuminate the work area during cleaning and inspection.

3.3.2 Notify the Coast Guard Inspector prior to opening any accesses to the designated tanks. Open all accesses to the designated tanks using non-sparking tools.

3.3.3 While manhole covers are removed, provide barriers over any open holes in the deck to prevent personnel from falling into open manholes. Post warning signs at the forward, aft, inboard, and outboard sides of all open accesses. Warning signs shall read: "DANGER, COVER IS REMOVED." Provide adequate lighting during night hours to illuminate hazards.

3.4 GAS FREE CERTIFICATION

3.4.1 Ventilate the designated tanks in accordance with the General Requirements to obtain gas free certification. Ensure that vapors do not contaminate adjacent compartments.

3.4.2 Gas free and certify the affected compartments/tanks in accordance with the General Requirements. The affected compartments/tanks must be certified as "Safe for Personnel – Safe for Hotwork" for the duration of work performed on this item.

3.4.3 Gas Free Certificates indicating the current status of each compartment/tank shall be posted on the Quarterdeck and at each open access to the compartments/tanks. Provide one copy to the Coast Guard Inspector.

3.5 TANK CLEANING

3.5.1 Plug all inlet and outlet piping in the tank to prevent contaminants from entering the tank. Use plugs with an attached lanyard, ring or other system that will ensure plugs are not lost in the pipe openings. Maintain a plug accountability log outside the tank(s) to prevent any of the installed temporary plugs from being lost inside the tank or forgotten inside at tank closure.

3.5.2 Clean all designated tanks in accordance with MIL-HDBK-291. Use non-sparking tools exclusively. Wipe the interior tank structure dry and free of all cleaning agents.

3.5.3 Remove and dispose all residual fuel, oil, water, sludge, marine and fungus growth, and other foreign materials and contaminants in accordance with all federal, state, and local laws and regulations. Clean all the designated oil tanks' internal surfaces. Ensure tanks are free of all residual water, sludge, rust, microbacterialogical growth, and foreign material.

CAUTION

Flammable and toxic vapors may be present in fuel, oil, dirty oil sludge, or other tank contaminants. These vapors may be released from the tank into the compartment's atmosphere during the cleaning process. Maintain gas free certification for the duration of all work performed in the tanks.

3.6 INSPECTIONS/TESTS

3.6.1 In the presence of the Coast Guard Inspector, inspect all designated tanks to verify cleanliness and condition of all tanks. Specific structural items which shall be inspected include, but are not limited to: tank plating, striker plates, sounding tubes, structural strength members, vents, pipes and pipe hangers, tank level indicators, tank access cover and tank coating system. Submit a CFR.

3.6.2 The Contractor shall measure approximately 10 “pits” within each tank as designated by the Coast Guard Inspector using a Contractor supplied ‘Pit Gauge’. The results of these measurements shall also be included in the inspection report showing where pit measurements were taken and the depth of the pit.

3.7 RESTORATION

3.7.1 Upon verification by the Coast Guard Inspector, remove all plugs, tools, and foreign objects from the tanks. The Coast Guard Inspector will conduct a final inspection of the tank to verify that all tools, plugs, and foreign objects have been removed.

3.7.2 Upon verification from the Coast Guard Inspector reinstall all tank access covers.

3.7.2.1 Install new gaskets conforming to SAE-AMS-C-6183. Chase threads on studs to ensure even installation of the access covers.

3.7.2.2 Renew any damaged or non-monel nuts with nickel-copper alloy (monel) nuts meeting QQ-N-281, Class A or B. The nuts and bolts shall be of different classes to prevent galling. Existing undamaged fasteners meeting this specification may be reused. For purpose of bid, assume only 10% of existing fasteners will require renewal.

3.7.3 Clearing Tags – Restore all affected systems and clear tags in accordance with the General Requirements.

3.7.4 Restore all interferences. Restore the work areas to a clean condition.

3.8 Coordinate all inspections with the designated Coast Guard Inspector to minimize production delays.

ITEM 3: MAIN DIESEL ENGINE SEA VALVES REPLACEMENT

EC139_25611_JSP_0508_110

1 SCOPE

The intent of this item is for the Contractor to replace the Walton Seawater Recirculation Valves with Leslie Recirculation Valves on the Cutter. The modification also routes the discharge of the reduction gear cooler directly overboard.

Government Furnished Property: NONE

2 REFERENCES

Coast Guard Drawings:

110B-WPB 85-12, Rev A; Booklet of General Plans (Supercedes 110B-WPB-085-
110B-WPB 256-5, Rev B; Main Engine Seawater Cooling 3-Way Valve Ripout &
110B-WPB 320-1, Rev G; Ships Svc Pwr 1-Line Diag
110B-WPB 320-1, Rev G; Ships Svc Pwr 1-Line Diag
110B-WPB 437-1, Rev G; Mn Eng & Generator Instrum (Flapper & Walton Vlv S

Applicable Documents:

CG Tech Pub 4671, 2/2/2008; MDE Salt Water Valves
MLCPAC Standard Specification 304.1, 3/1/2000; Shipboard Electrical Cable Test
MLCPAC Standard Specification 304.2, 3/1/2000; Shipboard Electrical Cable Removal, Relocation, Splice, Repair and Installation
MLCPAC Standard Specification 074, 3/21/2003; Welding and Allied Processes
MIL-DTL-24643, Rev B, Sup 1A; Cables and Cords, Electric, Low Smoke, For Shipboard Use, General Specification for
American Society for Testing and Materials (ASTM) F708, 92(2004); Standard Practice for Design and Installation of Rigid Pipe Hangers
American Society for Testing and Materials (ASTM) F1836M, 97(2007); Standard Specification for Stuffing Tubes, Nylon and Packing Assemblies (Metric)

3 REQUIREMENTS

The Contractor shall provide all labor and material to accomplish the following in accordance with the General Requirements:

3.1 GENERAL

3.1.1 In the presence of the Coast Guard Inspector, inspect and test all equipment and systems that will be disturbed during the performance of this work to document their original condition. Submit a Condition Found Report for all such equipment and systems noting any existing (pre-work) discrepancies in their operation.

3.1.2 Tag-Outs – Secure, isolate, and tag-out all affected mechanical, piping, and electrical systems in accordance with the General Requirements.

3.1.2.1 The Contractor shall secure, isolate and tag out both MDEs, Saltwater Sea Chest Isolation Valves and the Walton Valves.

3.1.3 Interferences – The Contractor shall remove, modify, or protect all interferences to the work. All interferences that are removed shall be tagged to facilitate proper reinstallation. Ensure that all removed equipment is kept in a clean, dry, protected location. Obtain verification from the Coast Guard Inspector for the protective measures taken for equipment not removed. Known interferences are Deck Plates and associated framing near the existing MDE Walton Valves.

3.2 GAS FREE CERTIFICATION

3.2.1 Gas free and certify affected compartments in accordance with the General Requirements. The affected compartments must be certified "Safe for Personnel – Safe for Hotwork" for the duration of work performed under this item.

3.2.2 Gas Free Certificates indicating the current status of each compartments shall be posted on the Quarterdeck and at each open access to the compartments. Provide one copy to the Coast Guard Inspector.

3.3 HOT WORK – conduct all welding in accordance with MLCPAC STD SPEC 074. All welds shall be continuous, 100% efficient welds.

3.4 EQUIPMENTS REMOVAL

3.4.1 The Contractor shall disconnect and remove the cables to the Port & STBD Walton Valve Controllers in accordance with the MLCPAC Std Spec 304.2.

3.4.2 Install blank flange in the piping at the sea strainers.

3.4.3 Remove Power Cable (i.e.1-K-1D & E-K-ID) to the Port & STBD Electronic Actuator.

3.4.4 Remove Port and STBD Walton Valve Controllers from Frame No.24 as shown in the Figure 1.

3.4.5 Also remove thermocouples (Figure 2) from the raw water pump discharge piping.

3.4.6 Remove old wiring from the Port and STBD thermocouple to thermocouple Junction Box (i.e. Cable No. 1-K-1C & 2-K-IC, Figure 3 & 4) on the back of the MDE as shown on the CG DWG 110B-WPB 437-001.

3.4.7 Remove 3-Way Walton Valves.

3.4.8 Remove 2 Inch reduction gear cooler discharge saltwater piping as shown on CG DWG 110B-WPB 256-005.

3.4.9 The Contractor shall dispose all removed components and not being reused in accordance with the General Requirements.

3.5 MATERIAL

3.5.1 The Contractor shall supply all the material listed in the Material List Table and Material List Table (Electrical) as shown on the CG DWG 110B/110-WPB-256-006 (Sheet 1).

3.5.2 The Contractor shall supply all material required for complete installation of the MDE Sea Water Valves System. The contractor shall provide miscellaneous hardware required for electrical installation (i.e. Nylon Stuffing Tubes, Box Connectors, Lugs, Fasteners, Wire Nuts, Tape, Cable ties & Brackets) of MDE Sea Water Valves.

3.5.3 The Contractor shall provide piping hanger and support in accordance with the ASTM F 708.

3.6 EQUIPMENTS INSTALLATION

3.6.1 Modify the MDE seawater piping as required to accept the installation of the new 4 Inch 3-Way Rotary Control Valve.

3.6.2 The Contractor shall install 4 Inch 3-Way Rotary Control Valve with Electric Operator. Mount the Valves above Paxman Heat Exchangers on outboard side of the each engine with actuator facing inboard as shown in the Figure 5 &6.

3.6.3 Flange labeled “A” faces forward on each side and connects to the inlet.

3.6.4 Flange labeled “B” faces AFT on each side and connects to the overboard line.

3.6.5 Flange labeled “C” faces down and connects to the diverted line back to the pump suction using bronze spacer (Part No. N81173) and gasket (Part No.N81179) supplied with valve package. The Contractor shall machined the spacer to fit correctly to each side.

3.6.6 The Contractor shall install piping and Leslie Valve as shown on the CG DWG 110B-WPB 256-005 (Sheet 3) and Figure 5 & 6.

3.6.7 Piping shall be properly and adequately supported to prevent damage from vibration using hangers and support suitable for the system in accordance with the ASTM F 708.

3.6.8 Re-route and install the new piping for the 2 Inch Reduction Gear Cooler discharge saltwater piping as shown on the CG DWG 110B-WPB-256-005. Approximately 12 lin. ft. of 2 ips cu-ni tubing is involved, five (5) elbows and three (3) union fitting. Provide and install any required piping hangers.

3.6.9 Hydrostatically test the new piping upon completion of installation. Conduct the hydrostatic test in the presence of the Coast Guard Inspector. The new piping shall be tested to 45 psig, with no leakage allowed. Repair ay leaks and retest until piping is leak free. Submit a Condition Found Report to the Coast Guard Inspector upon completion of hydrostatic testing.

3.6.9.1 Isolate the piping from the MDEs and the reduction gear when performing the testing by installing blanks in required locations.

3.6.9.2 Remove the blanks upon completion of testing. Install new gaskets wherever piping was broken for testing.

3.7 ELECTRONIC CONTROLLER INSTALLATION

3.7.1 All new cables shall be of unarmored construction with low smoke insulation conforming to MIL-DTL-24643.

3.7.2 Test all new and rerouted cables per MLCPAC Standard Instruction 304.1 in the presence of the Coast Guard Inspector.

3.7.3 The Cable entrances to splash proof, spray tight and watertight enclosures shall be through plastic stuffing tubes in accordance with ASTM F 1836M.

3.7.4 Terminate cable with ring type terminals. Spade type lugs shall not be used. No more than three wires shall terminate at any one stud or terminal.

3.7.5 Labeling:-:All labeling and markings shall be consistent with the Cutter’s existing procedure.

3.7.6 Install cable tags on all new and rerouted cables in accordance with MLCPAC Std Spec 304.2. Tags shall be located at equipment cable entrances and on each side of a deck or bulkhead penetration.

3.7.7 Wiring installation methods and cable supports shall be in accordance with the Cutter's existing procedure.

3.7.8 New wires grouped in harnesses, or single wires more than 12 inches in length (unless they are unique in color or size and can be traced visually from one end to the other), shall be marked for identification. Marking may be accomplished by stamping the identification symbol on the wire insulation, by sliding a sleeve type wire marker over the wire insulation. Marking shall be applied in a permanent manner, resistant to water, heat, oil, and abrasion.

3.7.9 Reuse existing stuffing tubes when practicable & use existing wire ways whenever possible for installation of new cables.

3.7.10 The Contractor shall mount new controllers in the same location as previously removed controllers. The Contractor shall mount the Controllers in accordance with Installation Guide as indented the CG Tech Pub 4671. Outline dimension of the Controller is show in the Figure 10 and installation location is shown in the Figure 7.

3.7.11 The Contractor shall install Thermowell and Thermocouple Transmitter into threaded connection in the Seawater cooling line at the front of each engine shown in the Figure 8 & 11. This installation requires use of adapter and bushing (PC 9 &10) as shown on the CG DWG 110B-WPB-256-005 (Sheet 1).

3.7.12 The Contractor shall install following new cables listed in the Table:

TABLE 1

CABLE NO	CABLE TYPE	FROM	TO
(2-26-2)-1P-R(1)	LSTSGU-4	Power Panel (2-26-2)	STBD Sea Water Cooling Valve
NONE	LS2SJ-20	Controller	STBD-J-Thermocouple
(2-26-2)-P-R(2)	LSTSGU-4	Controller	STBD-Valve
NONE	LS2SJ-20	Controller	STBD-Valve
(2-26-2)-1P-S(1)	LSTSGU-4	Power Panel (2-26-2)	Port- Sea Water Cooling Valve
NONE	LS2SJ-20	Controller	Port-J-Thermocouple
(2-26-2)-P-S(2)	LSTSGU-4	Controller	Port-Valve
NONE	LS2SJ-20	Controller	Port-Valve

3.7.13 The Contractor shall remove the Leslie Valve Actuator Cover and terminate cable listed in the Table 1 as shown on the CG DWG 110B WPB-256-005 (Sheet 4).

3.7.14 The Contractor shall verify the following DIP Switch Setting on Leslie Valve Actuator and re-install the cover.

TABLE 2

DIP SWITCH NUMBER	DIP SWITCH SETTING
1	ON
2	ON
3	ON
4	OFF
5	ON
6	OFF
7	OFF

3.8 ABB COMMANDER 310 ELECTRONIC CONTROLLER PROGRAMMING

3.8.1 The Contractor shall program the Controller in accordance with the Tech Pub 4671 and instructions provided at the end of this specification.

3.9 ACCEPTANCE TESTING

3.9.1 Clearing Tags – As needed for testing, restore all affected systems and clear tags in accordance with the General Requirements.

3.9.2 Test Performance – All acceptance tests shall be performed in the presence of the Coast Guard Inspector. Provide a written report to the Coast Guard Inspector of all test results within one week of test completion.

3.9.3 Continuity Checks and Megger Readings. The Contractor shall perform continuity checks of each reconnected and reinstalled cables. Continuity checks shall be from distribution panel to each terminal end. The Contractor shall also take megger readings for each reconnected cable between each phase and from each phase to ground to ensure proper cable reconnection and insulation.

3.9.4 Hydrostatic Test – Test components or systems where pressure boundary parts were replaced or modified to 150% of rated pressure using potable water or other suitable liquid compatible with the system. Rated pressure shall be the lowest rated pressure of the components being tested together. No leakage shall be allowed after holding test pressure for a minimum of 10 minutes.

3.9.4.1 Conduct a hydrostatic test of the new piping systems as described in the paragraphs above.

3.9.5 Operational Test – The Contractor shall verify proper operation of MDE Sea Water Valves installation in the presence of Coat Guard Inspector in accordance with Tech Pub 4671.

3.10 RESTORATION

3.10.1 Prepare and paint all new and disturbed surfaces in accordance with the General Requirements.

3.10.2 Restore all interferences to their original condition in accordance with the General Requirements.

3.10.3 Clearing Tags – Restore all affected systems and clear any remaining tags in accordance with the General Requirements.

Walton Valve Controller

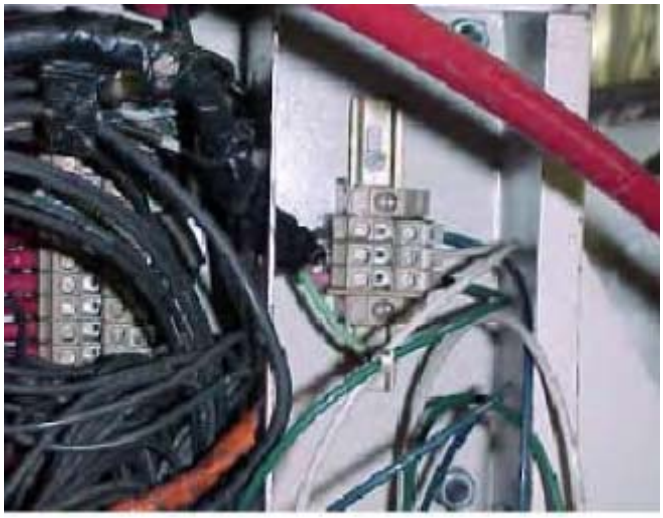
FIGURE 1

Thermo Coupling

FIGURE 2

Starboard Junction Box

FIGURE 3



Port Junction Box

FIGURE 4

Starboard Valve

FIGURE 5

Port Valve

FIGURE 6

Starboard Controller

Port Controller

FIGURE 7

Starboard Thermocouple Transmitter

Port Thermocouple Transmitter

FIGURE 8

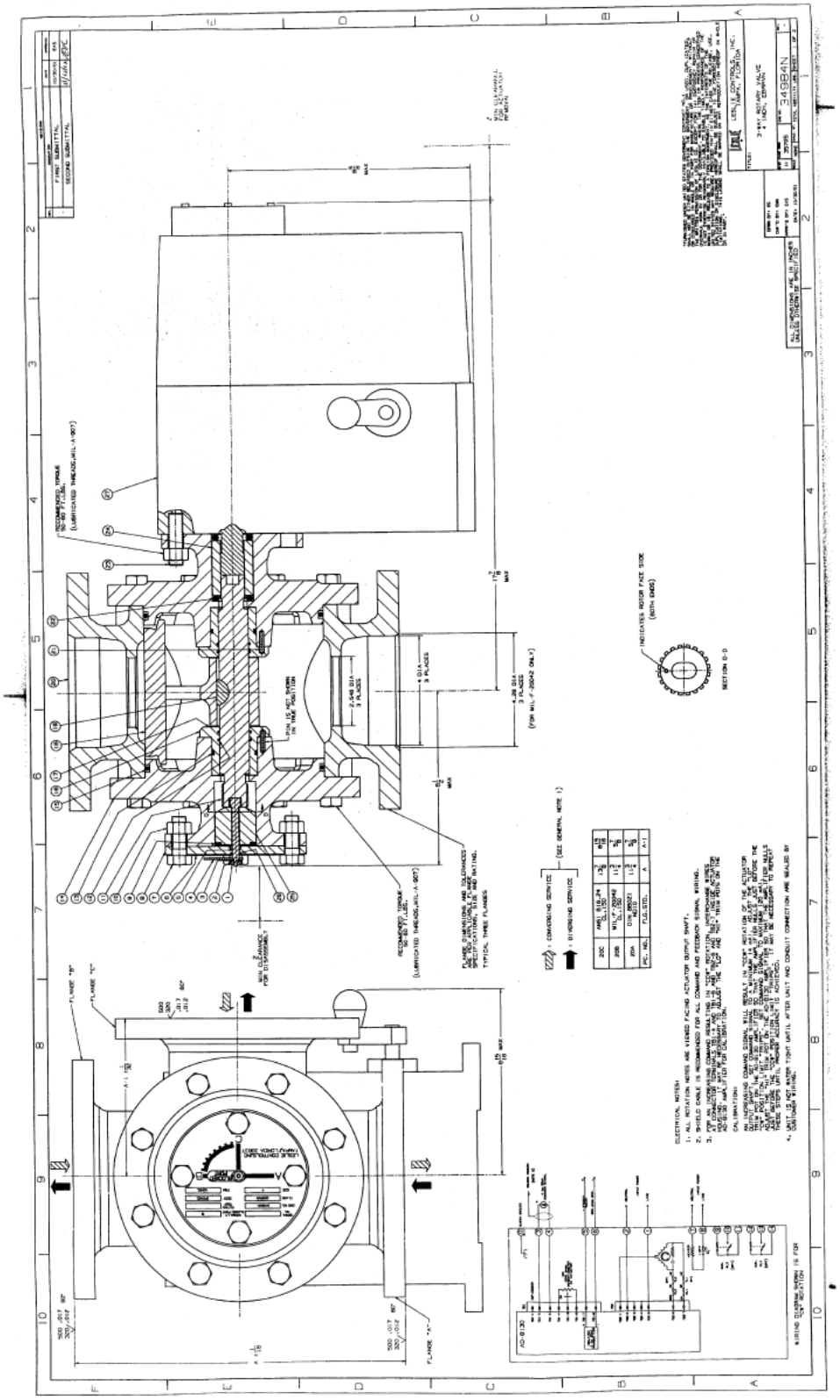


FIGURE 9

4 INCH LESLIE VALVE OUTLINE DIMENSION

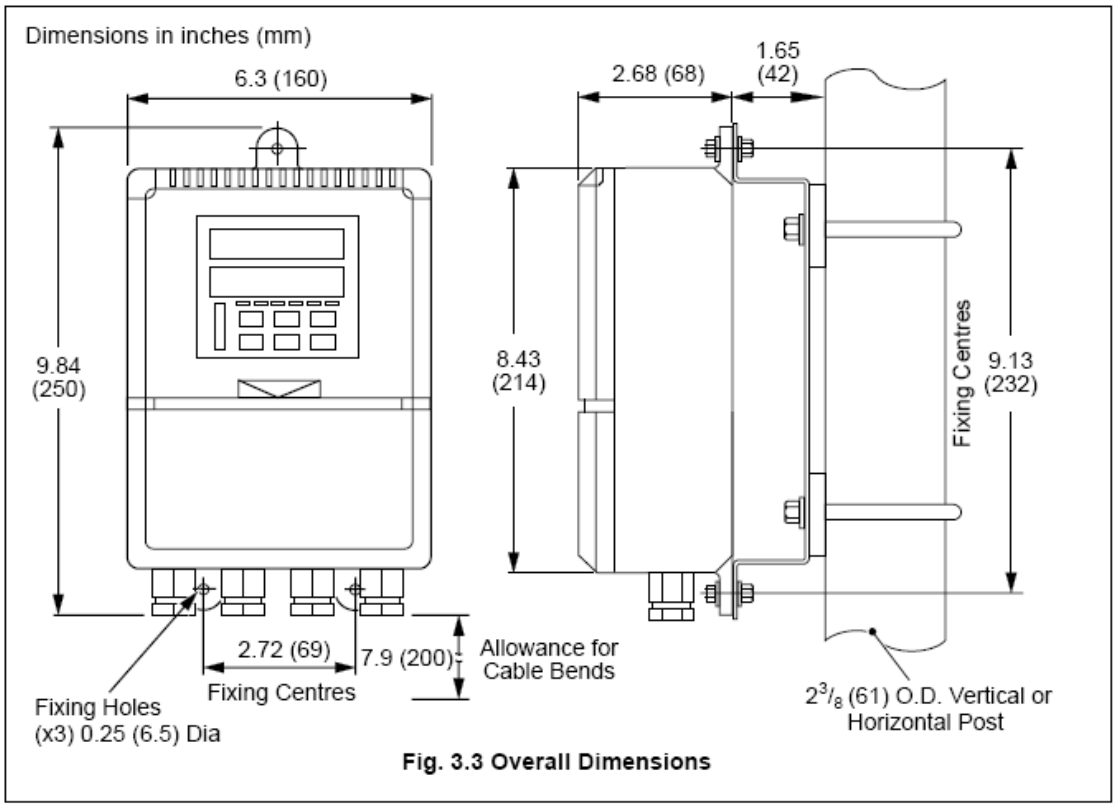


Fig. 3.3 Overall Dimensions

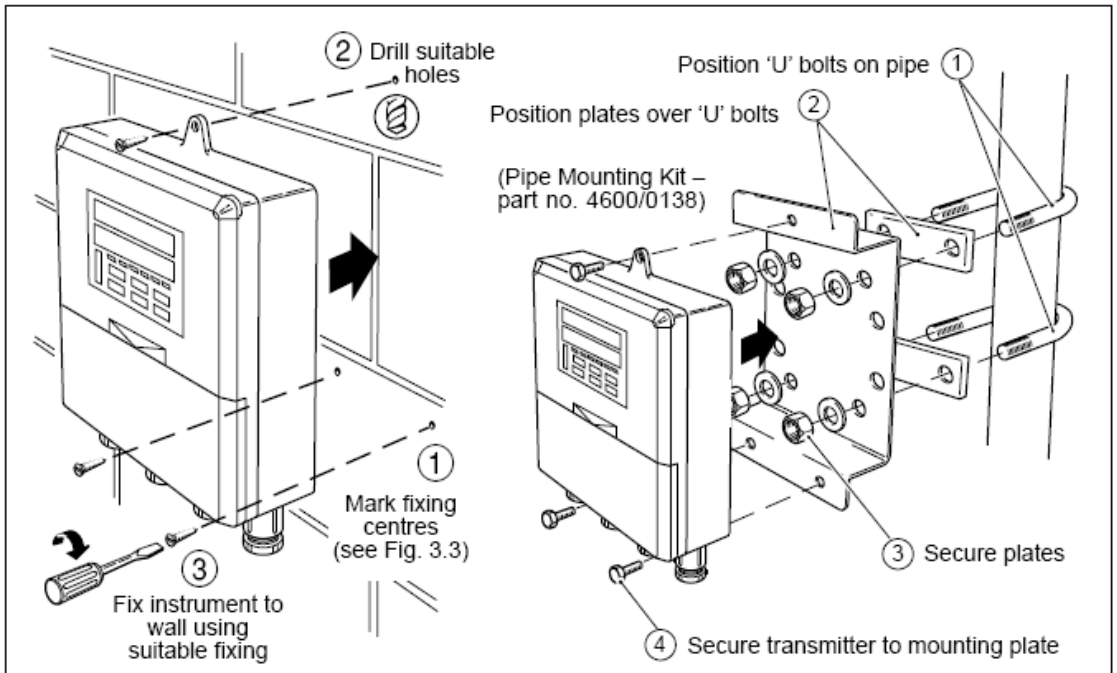


Fig. 3.4 Wall-/Pipe-mounting Details

FIGURE 10

CONTROLLER ,MOUNTING DIMENSION

WATTS INDUSTRIES, INC.
LESLIE CONTROLS, INC.
12501 Telecom Drive, Tampa Florida 33637

INSTALLATION INSTRUCTIONS
LESLIE THERMOCOUPLE

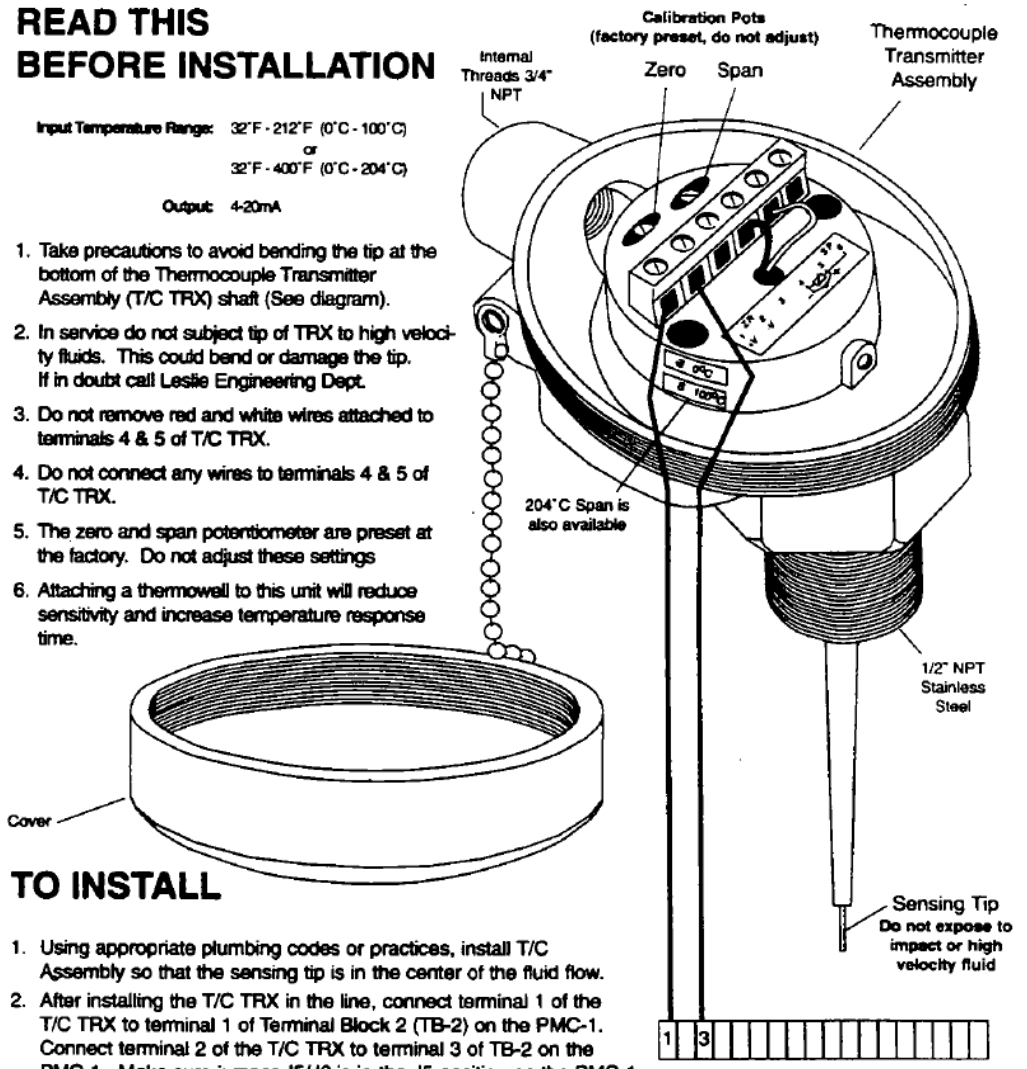
26/2.5.3.1
6/95

READ THIS BEFORE INSTALLATION

Input Temperature Range: 32°F - 212°F (0°C - 100°C)
or
32°F - 400°F (0°C - 204°C)

Output: 4-20mA

1. Take precautions to avoid bending the tip at the bottom of the Thermocouple Transmitter Assembly (T/C TRX) shaft (See diagram).
2. In service do not subject tip of TRX to high velocity fluids. This could bend or damage the tip. If in doubt call Leslie Engineering Dept.
3. Do not remove red and white wires attached to terminals 4 & 5 of T/C TRX.
4. Do not connect any wires to terminals 4 & 5 of T/C TRX.
5. The zero and span potentiometer are preset at the factory. Do not adjust these settings
6. Attaching a thermowell to this unit will reduce sensitivity and increase temperature response time.



PMC-1 Terminal Block 2 (TB-2)
See LESLIE PMC-1 Installation, Operating and Maintenance Instruction #26-2.5.1, Fig. 2 & 7.

TO INSTALL

1. Using appropriate plumbing codes or practices, install T/C Assembly so that the sensing tip is in the center of the fluid flow.
2. After installing the T/C TRX in the line, connect terminal 1 of the T/C TRX to terminal 1 of Terminal Block 2 (TB-2) on the PMC-1. Connect terminal 2 of the T/C TRX to terminal 3 of TB-2 on the PMC-1. Make sure jumper J5/J6 is in the J5 position on the PMC-1.
3. Replace cover.

NOTE: Diagrams of TB-2 are found in PMC-1 Installation, Operating, and Maintenance Instruction #26-2.5.1, Fig. 2 & 7.

FIGURE 11

THERMOCOUPLE INSTALLATION

ABB COMMANDER PROGRAMMING INSTRUCTION

(CG TECH PUB 4671 SHOWS DETAIL OPERATION AND PROGRAMMING OF THE ABB COMMANDER)

A. CONTROLLER INSTALLATION

1.Remove controller covers to verify/set positions of Selector Links as shown in the Table 2

PL7 – Analog Output

PL1 (Process variable Input) – Two Wire Transmitter Input

PL2 (Remote Set Point Input) – mA

PL3 (Position Feedback Input) – mA

NOTE: Run all wiring through watertight connections provided and located at the bottom of the controller.

2.Wire controller IAW CG DWG 110B WPB-256-005. Be sure to properly bond cables shielding to controller ground point to reduce risk of EMI/RFI interference.

NOTE: Actuator control and thermocouple connections are polarity sensitive.

3. Verify Power Supply Selection Switch is in the 115 V position.

4.Reassemble covers on controller.

B. J-TYPE THERMOCOUPLE TRANSMITTER AND THERMOWELL INSTALLATION

1. Install watertight wire connection, stuffing tube, on each thermocouple transmitter. Run new cable in overhead to thermocouple. Do not break the shielding inside a junction box.

2. Wire up thermocouple in accordance with the manufacturer's instruction and CG Dwg 110B-437-001/

NOTE: These connections are polarity sensitive.

C. SET-UP AND PROGRAMMING, IAW REFERENCE CG Tech Pub 4671 (ABB COMMANDER 310 OPERATING GUIDE. (NOTE: PAGE NUMBER REFERENCES CORRESPONDS TO CG TECH PUB 4671)

1. Power-up control valve and controller.
2. Select manual mode for set-up and programming.
3. Advance menu to "Control Page".
4. Scroll down to "Proportional Band" Frame and set value to "15%" as shown on Page 23, Para. 7.2.
5. Scroll next to "Time Units" and set value to "SECS".
6. Scroll to "Integral Action Time" and set value to "50".
7. Scroll to "Derivative Action Time" and set value to "OFF".
8. Scroll to "Approach Band" and set value to "1.0".
9. Scroll to "Manual Reset Adjust Enable" and set value to "no".
10. Scroll to "Control Algorithm Offset" and set value to "50.0%".

Note: Refer to Commander 310 Operating Guide (i.e Tech Pub 4671)

Note: Profile Program Page not used

1.Advance menu to “Set Points Page”.

Note: Items 2 through 7 below are shown on Page 7

2. Scroll to “Set Point Adjustment Enable” and set value to “YES”.
3. Scroll to “Set Point High Limit” and set value to “120”.
4. Scroll to “Set Point Low Limit” and set value to “60”.
5. Scroll to “Local Set Point Value” and set value to “77”.
6. Scroll to “Set Point Tracking Enable” and set value to “no”.
7. Scroll to “Set Point Select” and set value to “YES”.

Note: Items 8 and 9 below are shown on Page 8

8. Scroll to “Second Set Point Type” and set value at “NONE”.
9. Advance menu to “Set Up PV Page”.

Note: Position Feedback Page and Regulator Data Pages are not used

Note: Items 10 and 11 below are shown on Page 16

10. Scroll to “Process Variable Input Type” and set value to “current”.
11. Scroll to “Linearizer Type” and set value to “NONE”.

Note: Items 12 through 15 below are shown on Page 18

12. Scroll to “Input Range Full Scale” and set value to “200”.
13. Scroll to “Decimal Point” and set value to “20.0”.
14. Scroll to “Input Range Zero” and set value to “4.0”.
15. Scroll to “Broken Sensor Protection Drive” and set value to “UP”.

Note: Items 16 through 20 below are shown on Page 19

16. Scroll to “Fault Detection Level Percentage” and set value to “10.0”.
17. Scroll to “Default Control Action” and set value to “NONE.
18. Scroll to “Programmable Filter” and set value to “5”.
19. Scroll to “Mains Filter” and set value to “60Hrt”.
20. Advance menu to “Display Page”.

Note: Set Up Remote Set Point Page and Set Up Position Feedback Page are not used.

Note: Items 21 through 29 below are shown on Page 24

21. Scroll to “Display Full Scale” and set value to “2120”.
22. Scroll to “Decimal Point Position” and set value to “212.0”.
23. Scroll to “Display Zero” and set value to “32.0”.
24. Scroll to “Percentage Increment Bar” and set value to “2”.
25. Scroll to “Display Units” and set value to “Deg F”.
26. Scroll to “Brightness Adjustment” and set value to “7”.
27. Advance menu to “Current Proportioning Output Page”.
28. Scroll to “Current Proportioning Output Maximum” and set value to “20.0”.
29. Scroll to “Current Proportioning Output Minimum” and set value to “4.0”

Note: Items 30 and 31 below are shown on Page 28

30. Advance menu to “Set Up Control Page”.
31. Scroll to “Control Type” and set value to “current proportioning”.
32. Scroll to “Control Mode” and set value to “SINGLE”.

Note: Items 33 and 36 below are shown on Page 30

33. Scroll to “Power Failure Mode” and set value to “LAST”.
34. Scroll to “Auto to Manual Power Fail Output” and set value to “0.0”.
35. Scroll to “Manual to Manual Power Fail Output” and set value to “LAST”.
36. Scroll to “Auto Power Fail Output” and set value to “AUTO”.

Note: Items 37 through 39 below are shown on Page 31

37. Scroll to “Power Fail Indication Enable” and set value to “NO”.
38. Scroll to “Failure Message” and set value to “YES”.
39. Scroll to “Auto/Manual Switch Enable/Disable” and set value to “ON”.

Note: Items 40 through 42 below are shown on Page 32

40. Scroll to “Output High Limit” and set value to “100.0”.
41. Scroll to “Output Low Limit” and set value to “0.0”.
42. Scroll to “Control Action” and set value to “dir” for direct acting.

Note: The following pages are not used; Set up Alarms Page, Retransmission Output Page, Serial Page, Cool Output Page, Scale Adjust Page and Access Page

43. Select “Automatic mode” and system will operate automatically.

ITEM 4: GREY WATER TRANSFER PUMP REPLACEMENTS AND PIPING MODIFICATIONS

EC140_52810_FBM_0608_110B

1 SCOPE

The intent of this item is to remove and replace the Forward and Aft Grey Water Pumps and motor assemblies; modify pumps suction and discharge transfer piping to overboard discharge and deck discharge connections. The grey water piping modifications will include replacing piping materials with copper-nickel alloy 90-10 and larger pipe size to accommodate the new replacement pumps, and connecting the grey water transfer pump discharge header to existing sewage transfer pump discharge to deck/shore connection.

Government Furnished Property: NONE

2 REFERENCES

Coast Guard Drawings:

110-WPB 526-2, Rev C; Gray Water Piping Arrg't & Dets
110-WPB 330-1, Rev B; Ship Service Lighting One-Line Diagram (Obsolete)
110B-WPB 085-6, Rev -; Miscellaneous Construction Sketches, Sheet 6
110B-WPB 185-1, Rev F; Equipment Foundations–Auxiliary Equipment, Sht 61
110B-WPB 330-1, Rev G; Ship Serv Lighting One Line Diagram (Obsoletesuper
110B-WPB 501-1, Rev E; Piping System Schematics (Bilge & Fire Piping), Sht 7 of 7
110B-WPB 526-1, Rev M; Scuppers & Deck Drains Piping Arrangement T
110B-WPB 528-2, Rev E; Sewage Piping Arrangement & Details

Applicable Documents:

American Society of Mechanical Engineers (ASME) B16.11, 2005; Forged Steel Fittings, Socket-Welding and Threaded
American Society of Mechanical Engineers (ASME) B16.9, 2003; Factory-Made Wrought Buttwelding Fittings
American Society for Testing and Materials (ASTM) A500, 2001; Standard Specification for Coldt-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes
American Society for Testing and Materials (ASTM) A501, 2007; Standard Specification for Hot-Formed Welded and Seamless Carbon Steel Structural Tubing
American Society for Testing and Materials (ASTM) F683, 2003A; Standard Practice for Selection and Application of Thermal Insulation for Piping and Machinery
CG Tech Pub 4691, 3/27/2008; Sewage System
COMDTINST M10360.3, Rev C; Coatings and Colors Manual
MIL-DTL-15024, Rev F; Plates, Tags and Bands for Identification of Equipment
MIL-F-1183, Rev J, Sup 1; Fittings, Pipe, Cast Bronze, Silver-Brazing, General Specifications for
MIL-STD-1627, Rev C; Bending of Pipe or Tube for Ship Piping Systems
MIL-STD-1689, Rev A; Fabrication, Welding and Inspection of Ships Structure
MIL-STD-2035, Rev A; Nondestructive Testing Acceptance Criteria
MIL-STD-22, Rev D, Not 3; Welded Joint Design
MIL-T-16420, Rev K, Amd 1; Tube, Copper-Nickel Alloy, Seamless and Welded (Copper Alloy Numbers 715 and 706)
MLCPAC Standard Specification 074, 3/21/2003; Welding and Allied Processes
MLCPAC Standard Specification 085.1, 3/1/2000; General Requirements for Drawing Preparation

MLCPAC Standard Specification 085.1, General Requirements for Drawing Preparation, 3/1/00
MLCPAC Standard Specification 304.1, Shipboard Electrical Cable Test, 3/1/2000
MLCPAC Standard Specification 304.2, Shipboard Electrical Cable Removal, Relocation, Splice, Repair and Installation, 3/1/2000
Naval Ship's Technical Manual (NSTM) Chapter 505, Rev 3; Piping Systems
Naval Ship's Technical Manual (NSTM) Chapter 593, Rev 5; Pollution Control
Naval Ship's Technical Manual (NSTM) Chapter 635, Rev 3; Thermal, Fire and Acoustic Insulation
NAVSEA 0900-LP-001-7000, Acn #1; Fabrication and Inspection of Brazed Piping Systems
NAVSEA Dwg 803-1385866, Rev E; Penetrations; Bulkhead and Deck
NAVSEA Dwg 803-6397383, Rev -; Discharge, Ovbd, Cu-Ni, 3/4 to 10 Inch
NAVSEA Dwg 804-1385781, Rev E; Pipe Hangers for Surface Ships (Superseding NAVSEA Dwg. 810-1385781)
NAVSEA Dwg 810-1385880, Rev D; Fittings, Cu-Ni Alloy, Slip on Sleeve
NAVSEA S9074-AR-GIB-010/278, 8/1/1995; Requirements for Fabrication Welding & Inspection & Casting Inspection & Repair for Machinery, Piping & Pressure Vessels
NAVSEA T9074-AS-GIB-010/271, Change Notice 1; Requirements for Non-Destructive Testing Methods
The Society for Protective Coatings SSPC-SP 3, 11/1/2004; Power Tool Cleaning

3 REQUIREMENTS

The Contractor shall provide all labor and material to accomplish the following in accordance with the General Requirements:

NOTE: A verification shipcheck by Contractor prior to bidding is recommended to; determine any major possible interferences; verify arrangements of affected grey water pumps suction and discharge piping including pipe sizes and materials; verify and inspect material conditions and arrangements of existing pumps structural supports/foundations if suitable for the new replacement grey water pump assemblies; verify grey water pumps suction connections to the grey water tanks; and to verify the new grey water pumps discharge piping routes and connection to existing sewage deck discharge connection on the main deck. Because CG Dwgs cited above are existing drawings of affected mechanical, hull and electrical components developed for WPB 110' Class cutters, there may be discrepancies with what is called out as existing in the drawings and what is actually existing on the cutter. Therefore, these drawings will be used as guidance for approximate location and familiarization of the affected system and work area. Coast Guard Drawing 110-WPB 526-2 is an arrangement drawing developed for the 1st WPB 110' cutter receiving the gray water pumps replacements and piping modification, and Coast Guard Drawings 110B-WPB 526-1 and 110B-WPB 501-1, sheet 7 of 7 shows affected grey water pumps and grey water piping removals.

CAUTION

Ensure that all personnel practice careful personal hygiene to avoid contracting hepatitis and other communicable diseases when working on the sanitary drain systems.

CAUTION

During work on this item, ensure that sanitary vapors from the piping do not contaminate adjacent compartments.

3.1 GENERAL

3.1.1 In the presence of the Coast Guard Inspector, inspect and test all equipment and systems that will be disturbed during the performance of this work to document their original condition. Submit a Condition Found Report for all such equipment and systems noting any existing (pre-work) discrepancies in their operation.

3.1.2 The concerned work area shall include, but is not limited to the Engine Room (3-22-0-E), CPO Stateroom (2-13-1-L), Mess Area (2-17-0-Q), Storage (2-17-1-A), Forward Grey Water Tank, Aft Grey Water Tank (3-28-0-W),and Engine Room Bilges area. See CG Dwgs 110-WPB 526-2, 110B-WPB 526-1 and 110B-WPB 501-1, sheet 7 of 7, 110B-WPB 528-2 for general arrangement of the work areas and affected mechanical, electrical, and hull components including but not limited to grey water pumps, grey water piping, sewage deck discharge piping, foundation, and electrical cables.

3.2 TAG-OUT – Secure, isolate, and tag-out all affected mechanical, piping, and electrical systems in accordance with the General Requirements. Cutter personnel will assist in locating all items to be secured or isolated required for this work item.

3.2.1 All fluid that drains from the piping systems shall be cleaned up and removed immediately.

3.2.2 Remove and dispose of any remaining liquids in the tanks by pumping the tank dry. Affected Forward Grey Water Tank and Aft Grey Water Tank (3-28-0-W) will be emptied, cleaned and gas freed in Definite Item, "Grey Water Holding Tank(s) Cleaning and Inspection." All affected spaces and associated piping and their components shall be certified as "Safe for Personnel–Safe for Hotwork" in accordance with the General Requirements.

3.2.3 Notify the Coast Guard Inspector prior to opening any accesses to the affected tanks.

3.3 **INTERFERENCE–**Remove or protect all interferences in accordance with the General Requirements. Known interference include but not limited to miscellaneous piping, deck plates, deck plate framings, honeycomb panel on mess deck, CPO stateroom lockers, bhd, and insulation. Temporary removal and reinstallation of any interferences required to complete this work item is the responsibility of the Contractor and in accordance with the General Requirements. All interferences that are removed shall be tagged to facilitate the proper reinstallation. Ensure that all equipment removed for reinstallation is kept in a clean, dry, protected location off the cutter at the Contractor's facility. Obtain verification from the Coast Guard Inspector for the protective measures taken for equipment not removed.

3.4 GAS FREE CERTIFICATION

3.4.1 Gas free and certify the affected compartments and tanks in accordance the General Requirements. The affected compartments must be certified "Safe for Personnel – Safe for Hotwork" for the duration of work performed under this item.

3.4.2 Maintain gas free certification until completion of all work under this definite item. Gas Free Certificates indicating the current status of each tank and affected spaces shall be posted on the quarterdeck, at each open access to the tanks and in the work area. Provide one copy to the Coast Guard Inspector.

3.5 HOTWORK – Conduct all hotwork in accordance with MLCPAC Std Spec 074 and as specified below. All welds shall be full-penetration, continuous, 100% efficient welds.

3.5.1 Brazed piping joints shall be fabricated and inspected per NAVSEA 0900-LP-001-7000, Class P-3b.

3.5.2 Fabrication, welding, and inspection of piping joints shall be in accordance with NAVSEA S9074-AR-GIB-010/278, Class P-2. Weld joint design for butt or socket welding in accordance with MIL-STD-22.

3.5.3 Fabrication, welding, and inspection of cutter structures shall be in accordance with MIL-STD-1689.

3.6 **FWD AND AFT GREY WATER PUMPS AND ASSOCIATED GREY WATER PIPING REMOVALS –** Use CG Dwgs **110B-WPB 085-6**, 110B-WPB 501-1, sheet 7 of 7, and 110B-WPB 185-1, sheet 61 as guidance to identify pump and motor assemblies, associated grey water piping systems, and structural appurtenances for associated removals as described below. See Table 1 for existing pump and motor data. Mark all proposed

removals for verification by the Coast Guard Inspector prior to the actual ripout. Cutter personnel will assist in locating affected pump and motor assemblies and grey water tanks.

TABLE 1

QUANTITY	DESCRIPTION	PUMP/MOTOR DATA
2	Grey Water Pump Assembly	JABSCO Part No. JA 18690-0000, 13 GPM, 115 VAC, single phase, 1/3 HP, neoprene impeller

3.6.1 Electrical Wiring Removal:

3.6.1.1 The Contractor shall disconnect and pull back cables from Pump Electric Motors in accordance with the MLCPAC STD Spec 304.2. Insulate the terminals of each cable to prevent any accidental shock. Record wiring information and submit to the Coast Guard Inspector. Existing pulled back cables from the Pump Controllers will be re-used for new installation of the Grey Water Pumps. If existing cables are not long enough to reach new mounting location of the Grey Water Pumps, the Contractor shall submit the CFR to the Coast Guard Inspector.

3.6.1.2 Existing electrical wiring for the Pump Electric Motor is shown on CG DWG 110 WPB-330-001

3.6.1.3 The Contractor shall clearly mark and record phase identification of each cable for later re-connection.

3.6.1.4 The Contractor shall disconnect and pull back cables to existing high and level switches**.** Existing Grey Water Pump (AFT & FWD) Starter Name Plate Data is listed in the Table 2:

TABLE 2

QUANTITY	DESCRIPTION	NAME PLATE DATA
2	Starter, Grey Water Pump	Starter, NEMA Size 0, Start/Stop Pushbutton,120 Volt AC, Single Phase, 60 Hz, NEMA 12 Enclosure Allen-Bradley Part No.509-AJXD-1 (Order No. 729925

3.6.2 Mechanical–Remove and discard the ¾" IPS steel grey water transfer pumps suction and discharge piping including the grey water piping discharge to overboard and deck discharge piping. Piping removals starts from the grey water tanks suction connections; to the pumps inlet connections; continue piping removals from the pumps outlets connections to the grey water discharge piping to overboard and deck discharge connections. Remove and discard all fittings, valves, hangers and supports associated with the ¾" steel grey water piping system removals. All crosshatched [///////] pumps, piping and components in Coast Guard Drawing 110B-WPB 526-1, Plan –Below Tank Top (sheet 1 of 6), "Section 8-A" and 8-B´(sheet 2 of 6), and Coast Guard Drawing 110B-WPB 501-1, "Sanitary Drains System Schematic", sheet 7 of 7 shall be removed and discarded.

3.6.2.1 Remove and discard the forward and aft grey water pump assemblies from their respective foundations after disconnections and removals of suction and discharge piping.

3.6.2.2 Forward Grey Water Tank–Terminate piping removals from the 1" black malleable iron union (piece # US-1 in Coast Guard Drawing 110B-WPB 526-1, "Plan –Below Tank Top", sheet 1 of 6, and "Section 8-B", sheet 2 of 6). Unscrew and discard the 1" steel close nipples (piece # PNC-1 in Coast Guard Drawing 110B-WPB 526-1, "Plan –Below Tank Top", sheet 1 of 6, and "Section 8-B", sheet 2 of 6) from the 1" stainless steel half couplings, tank suction connection fittings (item # 16 in "Plan", "Elevation 6-A" and "Detail 3-C" of Coast Guard Drawing 110B-WPB 085-6, sheet 6).

3.6.2.3 Aft Grey Water Tank – Unscrew and discard the ¾" black malleable iron FPT union (pc # US-3/4 in Coast Guard Drawing 110B-WPB 526-1, "Plan –Below Tank Top", sheet 1 of 6 and "Section 8-A", sheet 2 of 6) from the ¾" steel nipple, tank connection fitting.

3.6.2.4 Remove and discard the ¾" stainless steel hull penetration overboard discharge piping.

3.6.2.5 Temporarily disconnect pump suction and discharge gage lines and retain them for reinstallations.

3.6.2.6 Unsweat brazed type fittings, or cut or grind welds for welded type fittings from piping or structural welding to facilitate piping, fittings, or components removals.

3.6.2.7 Remove and discard pipe hanger(s) and support(s) located along the affected ¾" IPS steel grey water pumps' suction and discharge piping including the combined overboard and deck discharge piping. However, if existing hanger(s) or support(s) can be modified or adjusted to accept the new replacement 1¼" IPS copper-nickel alloy piping, then Contractor should retain them for reinstallation. Deteriorated hanger(s) and supports shall be removed and replaced.

3.6.2.8 Remove and discard all ¾" IPS watertight deck and bhd penetration sleeve fittings associated with the removed 3/4" IPS steel grey water piping.

3.6.2.9 When and where necessary, install a temporary cap or plug or blank flange on the open piping or tanks upon removal to prevent system and surrounding area from contamination.

3.6.2.10 Ensure hot work does not warp, distort, or cause any damage to the adjacent structure.

3.6.2.11 Grind all welds smooth to facilitate removal of piping and/or components from the structural penetrations or piping assemblies including watertight deck or bhd sleeve fittings.

3.6.3 Structural–Remove and scrap all mounting brackets and supports associated with the permanently removed pump/motor assemblies except retain foundations for applicability check if new replacement pump and motor assemblies. Existing foundations are shown in Coast Guard Drawing110B-WPB 185-1, sheet 61. The Contractor shall lay out and mark the proposed modifications to existing foundations for verification by the Coast Guard Inspector prior to hot work.

NOTE: The Contractor has the option to remove existing foundations and replace with new ones or retain and modify to accept the replacement pump and motor assemblies. The choice between these alternatives is solely the Contractor's and should be based on his evaluation of the costs involved.

3.6.4 All holes left in cutter's structures, ie decks and bhds due to permanently removed mechanical or structural components shall be permanently plug or patch in accordance with General Note #14 of Coast Guard Drawing 110-WPB 526-2. All structural plug/patch welds on watertight deck and bhds shall be inspected in accordance with paragraph 3.10.

3.7 **FWD AND AFT GREY WATER PUMPS AND ASSOCIATED GREY WATER PIPING REPLACEMENTS AND MODIFICATIONS –** The Contractor shall perform the following to accomplish installation of new Fwd and Aft Grey Water Pump and Motor assemblies (see Table 3) in way of the removed pump assemblies and associated grey water transfer piping systems in paragraph 3.6. Provide all necessary materials to complete installations and/or modifications of structural, mechanical and electrical components as described below. Allow the Coast Guard Inspector to verify all proposed structural, electrical, and mechanical installations and modifications including locations of relocated components. The Contractor shall observe and follow installation requirements in accordance with OEM's instructions and CG Tech Pub 4691.

TABLE 3

QUANTITY	DESCRIPTION	PUMP/MOTOR DATA
2	Grey Water Pump and Motor Assembly, (pc#1 in Coast Guard Dwg 110-WPB 526-2)	American Machine & Tool (AMT) Co., Model #285G-95-w/seal 285X-301-VS, Self Priming Cast Iron Centrifugal Pump with Semi-open Clog Resistant Impeller, 1¼" FPT Suction and Discharge Ports, 82 GPM @ 70 Ft Head, Direct Coupled Electric Motor 3450 RPM, 1 HP, 115 VAC, Single Phase, 60 HZ, Type TEFC, Frame 56J, Shipping Weight 50 lbs

3.7.1 Structural–Foundation Fabrication and/or Modification

3.7.1.1 When and where necessary, fabricate and install a new foundation for each pump and motor assembly if existing foundation is removed, otherwise, use existing foundations and modified accordingly to accept mounting the new replacement fwd and aft grey water pumps. Provide and install any structural supports and/or sub plate for mounting each pump/motor assembly. Use ASTM A36, mild steel plate and shapes, as required, dimensions to suit installation. Use similar thickness and shape type as removed foundation. Mount new base plate against existing structural members/foundation. Drill through holes in new and/or modified foundations to mount pump and motor assemblies. Template hole locations from the replacement pumps/motors footprints.

3.7.1.2 Visually inspect and perform a magnetic particle or dye penetrant test on all new welds in accordance with paragraph 3.10.

3.7.1.3 Provide a written report of all nondestructive test findings to the Coast Guard Inspector.

3.7.1.4 Upon completion of successful nondestructive testing, the Contractor shall prepare and coat the new and/or modified foundation in accordance with paragraphs 3.14 and 3.15 prior to installing the pump and motor assembly.

3.7.2 Mechanical–Pump and Motor Assembly and Grey Water Piping Installations–The Contractor shall observe and follow installation requirements per OEM's recommended procedures and CG Tech Pub 4691. See Coast Guard Dwg 110-WPB 526-2 for the grey water piping arrangements and material specifications of associated piping and components **except with some specific material specifications and/or part numbers changes as described below**. The Contractor is reminded that there are new added components not identified in Material List of Coast Guard Dwg 110-WPB 526-2 but are necessary for material compatibility of piping components. For descriptive purposes piece numbers in parenthesis**, (pc#) and drawing views** cited below are the same call outs used in Coast Guard Drawing 110-WPB 526-2.

NOTE: For WPB 110' Class "A" cutters use sheet 2 of 3 of Coast Guard Dwg 110-WPB 526-2 for applicable grey water piping arrangements, and use sheet 3 of 3 for WPB 110' Class "B" and "C" cutters. Sheet 1 of 3 is applicable to all classes. Use Detail 11-A in sheet 2 of 3 (for all 110' WPB class cutters except for USCGC Tybee use Detail 18-A in sheet 3 of 3) in sheet 2 of 3 for connecting the new grey water pump discharge to sewage transfer pump discharge piping to deck connection for shore transfer.

NOTE: **Material changes** – For (**pc#2**), replace 1¼" OD to 1¼" IPS. For **(pc#3),** replace fabrication of 1¼" brass nipples MPT one end with monel nipples, MIL-T-1368, Class B, Schedule 40, 3" length, quantity required is 4. For **(pc#5**), replace 1¼" FSB x 1" FPT bronze reducing coupling with 1¼" MSB x 1" FSB bronze bushing (Flagg-Flow 5157-249), see paragraph 3.7.2.2.2 for installation. For **(pc#8)**, 1¼" bronze tee, replace Flagg-Flow part # to **5121**-250. For **(pc#11**), 1¼" bronze coupling, replace Flagg-Flow part # to **5301**-250.

3.7.2.1 Install each pump and motor assembly from their respective new and/or modified foundation. Use all new stainless steel, Type 316, fasteners to mount assembly.

3.7.2.2 Using Coast Guard Dwg 110-WPB 526-2 as installation guidance, install a new 1¼" copper-nickel alloy grey water suction piping for each pump downstream from the grey water tank connection(s). Install and route new 1¼" copper-nickel alloy grey water transfer piping downstream from each pump discharge port to a common overboard discharge piping and connect it to the new 1¼" overboard discharge hull fitting (see paragraph 3.7.2.2.1). Continue routing the new 1¼" copper-nickel alloy pumps common grey water transfer piping and pipe it to existing 2½" copper-nickel alloy sewage transfer pump discharge to deck connection riser below main deck in CPO Stateroom (2-13-1-L) as shown in Detail 11-A. See Plan View 20-B and Elevation 20-F for the grey water transfer piping routes.

3.7.2.2.1 Fabricate and install a new 1¼" IPS overboard discharge hull fitting (in place of the removed hull fitting) in accordance with Detail 7-A without backing plate and Detail 5-C for piece #s P3 (overboard discharge piping) and C3 (reinforce sleeve) of NAVSEA Dwg 803-6397383. Piece # P3 shall be copper-nickel alloy 70-30, Class 1650 or 3300 per MIL-T-16420, seamless. Alternate material specification for Piece #C3 is carbon steel per ASTM A500 or A501, seamless. Minimum length of reinforce sleeve is 4".

3.7.2.2.2 **Forward Grey Water Tank Connection Changes** – In Detail 20-A, install a new 1" IPS monel nipple MPT one end (per MIL-T-1368, Class B, Schedule 40) from existing 1" FPT stainless steel half coupling tank connection. Install a new 1¼" MSB x 1" FSB bronze bushing (sim to Flagg-Flow 5157-249) in lieu of 1¼" FSB x 1" FPT bronze reducing coupling (pc#5) from the new 1 ¼" bronze union (pc#11) and monel nipple's unthreaded end. This piping assembly will completely eliminate the use of (pc#5) in Detail 20-A.

3.7.2.2.3 **Aft Grey Water Tank Connection Changes** – In Section 24-A, install a new 1" IPS monel nipple MPT one end (per MIL-T-1368, Class B, Schedule 40) from existing 1" FPT half coupling tank connection. Install a new 1¼" MSB x 1" FSB bronze bushing (sim to Flagg-Flow 5157-249) in lieu of 1 ¼" FSB x 1" FPT bronze reducing coupling (pc#5) from the new 1 ¼" bronze union (pc#11) and monel nipple's unthreaded end. This piping assembly will completely eliminate (pc#5) from fit up in Detail 18-A.

3.7.2.2.4 **Grey Water Pump Inlet and Outlet Connections Changes** – In Detail 13-A, install the replacement 1¼" MPT one end monel nipple (pc#3) from each pump's port connection and install a new union (pc#11) from the other end (unthreaded end) of the nipple. This installation will also apply in Section 24-A and Section 24-E. The union fittings will be the take down joints for any required work on the pumps for maintenance and disassembly.

3.7.2.3 Replacement piping, (pc#2) shall be copper-nickel alloy 90-10, seamless, annealed, Grade 1, Class 200 in accordance with MIL-T-16420.

3.7.2.4 Bronze silver-braze fittings shall be in accordance with MIL-F-1183, Type A with brazing rings. Butt weld fittings shall be copper-nickel alloy alloy 90-10 or 70-30 fittings in accordance with NAVSEA Dwg 810-1385880 or ASME 16.11 or 16.9. Long radius 90° or 45° elbows shall be used instead of short turn elbows where practicable. Known complying products for Cu-Ni alloy welded fittings are Alaskan Copper and Brass Co., CUNICO, and Lee Brass (formerly Flagg-Flow Fittings).

3.7.2.5 An alternative to aforementioned silver-brazed bronze end and welded copper-nickel alloy end fittings are copper-nickel alloy mechanically attached fittings (MAFs) in accordance with ASTM F-1387. Type VI or Seapress fittings. Known complying products for copper-nickel alloy MAF fittings per ASTM F-1387. Type VI is Lokring Technology, and Viega for Seapress (these fittings require adapting pipe NPS in inches to mm).

NOTE: The choice between these alternatives is solely the Contractor's responsibility and should be based on his evaluation of the costs involved for material and labor costs. It shall be noted if MAFs are used for installation, the Contractor is not required to accomplish hydrostatic testing as specified in paragraph 3.12.

3.7.2.6 All new pipe hangers and supports shall be in accordance with General Note #4 of Coast Guard Drawing 110-WPB 526-2, or in accordance with NAVSEA Dwg 804-1385781.

3.7.2.7 Pipe bends shall be in accordance with MIL-STD-1627. Minimum pipe bend radius shall be five (5) times nominal pipe diameter.

3.7.2.8 All pipe threaded connections (tapered or straight pipe threads) shall be sealed during assembly using polytetrafluorethylene (PTFE) tape.

3.7.2.9 All new watertertight bhd penetration sleeves, (pc#7) of Coast Guard Drawing 110-WPB 526-2 shall be a plain steel sleeve in accordance with NAVSEA Dwg 803-1385866, Plain.

3.7.3 ELECTRICAL WIRING

3.7.3.1 The Contractor shall test previously removed cables in accordance with the MLCPAC Std Specification 304.1.

3.7.3.2 The Contractor shall re-connect cables to new Grey Water Pumps with previously recorded information.

3.7.3.3 The Contractor shall also re-connect high and low switches and verify wiring to the existing Grey Water Pump Controllers.

3.7.3.4 The Contractor shall verify that each new electrical connection is tight and properly terminated.

3.7.3.5 The Contractor shall perform continuity checks of each reconnected and reinstalled cables. The Contractor shall also take megger readings for each reconnected cable between each phase and from each phase to ground to ensure proper cable reconnection and insulation.

3.7.3.6 The Contractor shall verify that new/rerouted wiring is properly labeled and that all new/rerouted cables are properly marked.

3.7.3.7 Direction of Rotation Test – Perform a direction of rotation test on each Grey Water Pump Motors and . Correct any improperly phased or polarized wiring and repeat the test.

3.7.3.8 The Contractor shall perform automatic operation test in accordance with Note 5 of the CG DWG 110B WPB-501-001 (Sheet 7).

3.7.3.9 All acceptance tests shall be performed in the presence of the Coast Guard Inspector. Provide a written report to the Coast Guard Inspector of all test results within one week of test completion

3.8 Template all associated work to suit existing condition aboard the cutter.

3.9 The Contractor and Coast Guard Inspector shall visually inspect the installations.

3.10 **WELDING EXAMINATIONS –** The Contractor shall perform the following weld examinations:

3.10.1 In the presence of the Coast Guard Inspector, visually inspect and conduct a magnetic particle (MT) or dye penetrant (PT) weld inspections of watertight bhd penetration sleeves and overboard discharge hull fitting welds in accordance with NAVSEA T9074-AS-GIB-010/271 and MIL-STD-1689. The Coast Guard Inspector and the Contractor shall jointly determine whether a MT or PT test shall be used. Test acceptance standards shall be to Class III criteria in accordance with MIL-STD-2035(SH). Repair all weld deficiencies and retest.

3.10.2 Provide a written report of nondestructive test findings to the Coast Guard Inspector.

3.11 **PIPE FLUSHING –** The Contractor shall clean and flush all affected and new piping and piping joints in accordance with section 5.8 of NAVSEA 0900-LP-001-7000 and NSTM Chapter 505. All newly installed and affected piping shall be reasonably free of contamination and any remaining residue on the surface does not interfere with system operations or damage system components. Dispose of flushing fluid in accordance with all applicable federal, state and local laws and regulations. Do not drain any fluids into any space, bilge or exterior location.

3.12 HYDROSTATIC AND COMPARTMENT TIGHTNESS TESTING

NOTE: In lieu of piping hydrostatic testing, the Contractor has the option to perform NDT all new brazed and welded piping joints in accordance with paragraph 3.10.

3.12.1 The Contractor shall provide at least 24 hours notice to the COR before performing any tests.

3.12.2 The Contractor shall hydrostatically test all new grey water transfer piping (grey water pumps discharge piping to overboard and deck discharge connections at a pressure to 50 psig with clean sea water for 30 minutes prior to painting joints in accordance with NSTM Chapter 505; paragraph 505-11.1. Hold and maintain the water for a minimum of 30 minutes prior to inspection of the first joint. Inspect for leaks and weeps. No external leakage is allowed. Isolate all components and equipment, ie. tanks that may be damaged or adversely affected by the hydro test pressure.

3.12.3 The Contractor shall repair all leaks and re-test piping until successful completion of hydrostatic testing.

3.12.4 All piping joints, shall be left unguarded and exposed for examination during the test, unless they have been previously satisfactorily tested to at least the pressure specified herein.

3.12.5 Belowdecks Watertight Integrity – Perform a liquid film bubble emission leak test of each new, plugged, or disturbed watertight boundary penetration affected by this work item. Perform the liquid film bubble emission test on the new hull penetration and on any new watertight bulkhead penetrations.

3.12.5.1 Liquid film bubble emissions tests will be performed in accordance with the following:

3.12.5.1.1 The air hose nozzle shall be $^{3}/_{8}$ inch in diameter and the pressure at the nozzle shall be at least 90 psig.

3.12.5.1.2 Apply a soapy solution to the structure on the side opposite from the side that the stream of air is to be applied.

3.12.5.1.3 Hold the nozzle as close as possible to the joint or fitting under test and direct the air stream in the manner most likely to reveal leakage.

3.12.5.1.4 The acceptance criteria for the liquid film bubble emission leak tests shall be no formation of bubbles in the soapy solution and no other evidence of leakage.

3.13 OPERATIONAL TESTING

3.13.1 Conduct operational testing in the presence of the Coast Guard Inspector.

3.13.2 Piping System Operational Tests – All new grey water piping and pumps hall be operationally tested for proper operation and unobstructed flow. During the operational test verify manual and automatic operations of each pump.

3.14 **COMPARTMENT RESTORATION** – Upon completion of successful non-destructive testing, prepare all disturbed surfaces including disturbed tank surfaces in accordance with SSPC-SP 3.

3.14.1 Feather the surrounding surfaces to obtain a 3 inch wide, smoothly tapered boundary from the existing paint to the prepared surface.

3.14.2 Prepared areas are to be inspected and verified by the Coast Guard Inspector prior to application of any coating.

3.15 SURFACE COATING – Upon completion of successful non-destructive testing, prepare all new and disturbed surfaces in accordance with SSPC-SP No.3.

3.15.1 Feather the surrounding surfaces to obtain a 3-inch wide, smoothly tapered boundary from the existing paint to the prepared surface.

3.15.2 Prepared areas are to be inspected and verified by the Coast Guard Inspector prior to application of any coating.

3.15.3 Upon verification from the Coast Guard Inspector on all surface preparation, prime and coat the disturbed and prepared surfaces in accordance with COMDTINST M10360.3. For surfaces to be covered with insulation, apply primer coats only. Coat all prepared surfaces to match surrounding surfaces in accordance with the applicable tables of COMDTINST M10360.3. The Contractor shall ensure that all prepared surfaces are dry and free of dirt, dust, grease, grit, or other contaminants.

3.16 INSULATION – Insulation and lagging shall be installed on new piping in accordance with ASTM F683. All insulation and lagging disturbed in conjunction with this item shall be renewed in accordance with NSTM Chapter 635.

3.17 LABEL PLATES

3.17.1 Valve Label Plates – Fabricate and install a label plate for each of the newly installed isolation valves and pumps in accordance with MIL-DTL-15024. Material for valve and pumps label plates shall be stainless steel, Class 304 or 304L, 0.05" minimum thickness. Inscription shall contain the valve identification number, functional service and will be provided by the Coast Guard Inspector. All labeling and markings shall be consistent with Cutter's current practices.

3.18 CLEARING TAGS – Restore all systems and clear tags in accordance with the General Requirements.

3.19 In the presence of the Coast Guard Inspector, test associated systems at completion of work to ensure proper restoration of equipment.

3.20 Restore all interferences.

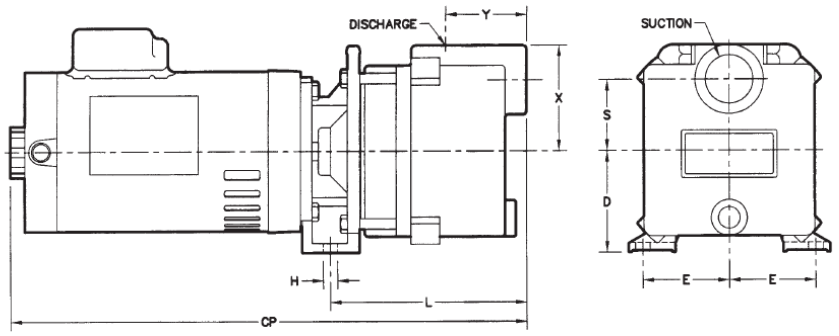
3.21 Restore affected work areas to a clean condition.

3.22 Upon completion, submit two marked-up (with erasable red pencil) blueline prints of CG Drawings 110-WPB 526-2 and 110B-WPB 185-1, sheet 61,to reflect the actual installation of piping and foundation system in accordance with MLCPAC Std Spec 085.

3.23 Coordinate all inspections with the designated Coast Guard Inspector to minimize production delays.

3.24 Enclosed Figure.

Self-Priming Cast Iron Centrifugal Pumps



Pump Dimensional & Specification Data

Model No.	Curve	HP	PH	Voltage ENC	Full Load @ 60 Hz+	Amps	SUC*	DIS*	CP**	D	E	H	L	S	X	Ship Y	Wt.
2851-95	D	1/3	1	ODP	115/230	8 / 4	1"	1"	17.1	3.5	3.0	.4	6.9	2.4	3.6	2.8	38 Lbs.
2852-95	C	1/2	1	ODP	115/230	10 / 5	1-1/4"	1-1/4"	17.1	3.5	3.0	.4	6.9	2.4	3.6	2.8	39 Lbs.
285M-95	C	1/2	3	ODP	230/460	4 / 2	1-1/4"	1-1/4"	17.6	3.5	3.0	.4	6.9	2.4	3.6	2.8	38 Lbs.
285E-95	D	1/2	1	TEFC	115/230	9 / 5	1"	1"	18.5	3.5	3.0	.4	6.9	2.4	3.6	2.8	42 Lbs.
2853-95	B	3/4	1	ODP	115/230	13 / 7	1-1/4"	1-1/4"	18.1	3.5	3.0	.4	6.9	2.4	3.6	2.8	43 Lbs.
285F-95	C	3/4	1	TEFC	115/230	9 / 5	1-1/4"	1-1/4"	19.0	3.5	3.0	.4	6.9	2.4	3.6	2.8	46 Lbs.
2856-95	B	3/4	3	ODP	230/460	4 / 2	1-1/4"	1-1/4"	16.6	3.5	3.0	.4	6.9	2.4	3.6	2.8	42 Lbs.
285P-95	C	3/4	3	TEFC	230/460	3 / 2	1-1/4"	1-1/4"	17.1	3.5	3.0	.4	6.9	2.4	3.6	2.8	45 Lbs.
2855-95	A	1	1	ODP	115/230	17 / 9	1-1/4"	1-1/4"	18.9	3.5	3.0	.4	6.9	2.4	3.6	2.8	47 Lbs.
285G-95	B	1	1	TEFC	115/230	12 / 6	1-1/4"	1-1/4"	19.4	3.5	3.0	.4	6.9	2.4	3.6	2.8	50 Lbs.
2857-95	A	1	3	ODP	230/460	5 / 3	1-1/4"	1-1/4"	16.9	3.5	3.0	.4	6.9	2.4	3.6	2.8	45 Lbs.
285J-95	B	1	3	TEFC	230/460	4 / 2	1-1/4"	1-1/4"	19.4	3.5	3.0	.4	6.9	2.4	3.6	2.8	48 Lbs.
285H-95	A	1-1/2	1	TEFC	115/230	18 / 9	1-1/4"	1-1/4"	20.2	3.5	3.0	.4	6.9	2.4	3.6	2.8	58 Lbs.
285K-95	A	1-1/2	3	TEFC	230/460	5 / 3	1-1/4"	1-1/4"	19.4	3.5	3.0	.4	6.9	2.4	3.6	2.8	56 Lbs.

(*) Standard NPT (female) pipe thread.
(**) This dimension may vary due to motor manufacturer's specifications.
(+) 3-Phase models can also operate on 50 Hz (This will change Full Load Amps and Service Factor, RPM and Priming Capabilities).
NOTE: Dimensions have a tolerance of ± 1/8".
NOTE: Electric supply for **ALL** motors must be within ±10% of nameplate voltage rating (e.g. 230V ±10%= 207 to 253).

Standard Features

- Cast Iron Construction
- Buna-N Mechanical Seal and O-Ring
- Optional Viton® or Silicon Carbide Mechanical Seal and O-Ring
- Dual Volute Design Reduces Radial Load on Motor
- 1" or 1-1/4" NPT Suction and Discharge Port
- Maximum Working Pressure 75 PSI
- Maximum Temperature 180° F
- Single or Three Phase, ODP or TEFC Motors Available
- Self-cleaning, Semi-open Impellers
- **"Off-the-Shelf"** Availability for Many Models

OFF THE SHELF PUMPS
46

Viton® is a registered trademark of E.I. DuPont

See price book page 18

The Gorman-Rupp Company reserves the right to discontinue any model or change specifications at any time without incurring any obligation.

CP45-46/0904

NOTE: REPLACEMENT GREY WATER TRANSFER PUMPS (PART NUMBER 285G-95, TEFC MOTOR) DIMENSIONAL AND SPECIFICATION DATA FOR REFERENCE.

ITEM 5: TANKLESS HOT WATER SYSTEM INSTALLATION

EC130_53311_JSP_0808_110

1 SCOPE

The intent of this item is for the Contractor to install Government Furnished Tankless Hot Water Heaters at Galley Closet and Aft Head (2-28-3-2) on the Cutter.

Government Furnished Property:

Description	Manufacturer	Part Number	NIIN	Qty	UOI
36 KW Tankless Hot Water Heater, 480 Volt, 3 Phase, 44 Amp,60 Hz	Keltech Inc	C2N363/480D-CG		1	Each
18 KW Tankless Hot Water Heater, 480 Volt, 3 Phase, 22 Amp, 60 Hz	Keltech Inc	C1N183/480D-CG		1	Each

2 REFERENCES

Coast Guard Drawings:

110-WPB 533-3, Rev D; Installation of Tankless Hot Water Heater
110B-WPB 320-1, Rev G; Ships Svc Pwr 1-Line Diag
110B-WPB 85-12, Rev A; Booklet of General Plans (Supercedes 110B-WPB-085-

Applicable Documents:

American Society for Testing and Materials (ASTM) F1836M, 97(2007); Standard Specification for Stuffing Tubes, Nylon and Packing Assemblies (Metric)
American Society for Testing and Materials (ASTM) F708, 92(2004); Standard Practice for Design and Installation of Rigid Pipe Hangers
CG Tech Pub 4633, 3/21/2007; Potable Water Heaters–Models C1N183 & C2N363
COMDTINST M6240.5, 10/10/1999; Water Supply and Waste Water Disposal Manual
COMDTINST M10360.3, Rev C; Coatings and Colors Manual
NAVSEA 0900-LP-001-7000, Acn #1; Fabrication and Inspection of Brazed Piping Systems
NAVSEA Dwg 810-1385781, Rev E; Hanger, Pipe, Surface Ship, Temperature to 425F (Superseded by NAVSEA Dwg. 804-1385781)
NAVSEA S9074-AR-GIB-010/278, 8/1/1995; Requirements for Fabrication Welding & Inspection & Casting Inspection & Repair for Machinery, Piping & Pressure Vessels
MIL-STD-22, Rev D, Not 3; Welded Joint Design
MIL-STD-1627, Rev C; Bending of Pipe or Tube for Ship Piping Systems
MIL-STD-1689, Rev A; Fabrication, Welding and Inspection of Ships Structure
MIL-STD-2035, Rev A; Nondestructive Testing Acceptance Criteria
MIL-DTL-24643, Rev B, Sup 1A; Cables and Cords, Electric, Low Smoke, For Shipboard Use, General Specification for
MLCPAC Standard Specification 304.1, 3/1/2000; Shipboard Electrical Cable Test
MLCPAC Standard Specification 304.2, 3/1/2000; Shipboard Electrical Cable Removal, Relocation, Splice, Repair and Installation
MLCPAC Standard Specification 074, 3/21/2003; Welding and Allied Processes
The Society for Protective Coatings SSPC-SP 11, 11/1/2004; Power Tool Cleaning to Bare Metal
MIL-STD-1310, Rev G; Shipboard Bonding, Grounding, And Other Techniques for Electromagnetic Compatibility and Safety

3 REQUIREMENTS

The Contractor shall provide all labor and material to accomplish the following in accordance with the General Requirements:

SHIP-CHECK – A verification shipcheck by Contractor prior to bidding is recommended to; determine any major possible interferences; verify arrangements of existing piping including pipe sizes and materials; verify and inspect material conditions and arrangements of existing structural supports/foundations of existing Electric Water Heaters. Because CG Dwgs cited above are existing piping and foundation arrangement drawings, developed for WPB 110' Class cutters, there may be discrepancies with what is called out as existing on the drawings and what is actually existing on the cutter. Therefore, these drawings will be used as guidance for approximate location and familiarization of the affected system and work area.

3.1 GENERAL

3.1.1 In the presence of the Coast Guard Inspector, inspect and test all equipment and systems that will be disturbed during the performance of this work to document their original condition. Submit a Condition Found Report for all such equipment and systems noting any existing (pre-work) discrepancies in their operation.

3.1.2 Tag-Outs – Secure, isolate, and tag-out all affected mechanical, piping, and electrical systems in accordance with the General Requirements.

3.1.3 Interferences – The Contractor shall remove, modify, or protect all interferences to the work. All interferences that are removed shall be tagged to facilitate proper reinstallation. Ensure that all removed equipment is kept in a clean, dry, protected location. Obtain verification from the Coast Guard Inspector for the protective measures taken for equipment not removed.

3.1.3.1 Existing Galley and Aft Head Electric Water Heater installation on the Cutter is shown for the Reference on CG DWG 110 WPB-533-003 (Sheet 1).

3.1.4 Gas Free Certification

3.1.4.1 Gas free and certify affected compartments in accordance with the General Requirements. The affected compartments must be certified "Safe for Personnel – Safe for Hotwork" for the duration of work performed under this item.

3.1.4.2 Gas Free Certificates indicating the current status of each compartments shall be posted on the Quarterdeck and at each open access to the compartments. Provide one copy to the Coast Guard Inspector.

3.2 HOTWORK – Conduct all hotwork in accordance with MLCPAC Std Spec 074. All welds shall be continuous, 100% efficient welds and as specified herein.

3.2.1 Brazed piping joints shall be fabricated and inspected per NAVSEA 0900-LP-001-7000, Change 1 Class P-3.

3.2.2 Fabrication, welding, and inspection of piping joints shall be in accordance with NAVSEA S9074-AR-GIB-010/278. Weld joint design for butt or socket welding will be performed in accordance with MIL-STD-22.

3.2.3 Fabrication, Welding, and Inspection of cutter's structures shall be in accordance with MIL-STD-1689.

3.3 ELECTRICAL REQUIREMENT FOR INSTALLATION

3.3.1 All new cables shall be of unarmored construction with low smoke insulation conforming to MIL-DTL-24643. Each cable shall be continuous from terminal end to terminal end with no splicing permitted. Cables that

penetrate watertight decks or bulkheads below the main deck shall be of watertight construction (e.g., LSTSGU, LSFSGU).

3.3.2 Test all new and rerouted cables per MLCPAC Standard Instruction 304.1 in the presence of the Coast Guard Inspector.

3.3.3 Disconnect, reroute, and/or remove cables in accordance with MLCPAC Std Spec 304.2.

3.3.4 Wiring installation methods and cable supports shall be in accordance with the cutter's existing procedure. Grounding and bonding of all electrical equipment frames shall be in accordance with MIL-STD-1310. Neutral conductors shall never be bonded to the hull or equipment ground.

3.3.5 The Cable entrances to splash proof, spray tight and watertight enclosures shall be through plastic stuffing tubes in accordance with ASTM F 1836M.

3.3.6 Terminate cable with ring type terminals. Spade type lugs shall not be used. No more than three wires shall terminate at any one stud or terminal.

3.3.7 Labeling:-:All labeling and markings shall be consistent with the Cutter's existing procedure.

3.3.8 Install cable tags on all new and rerouted cables in accordance with MLCPAC Std Spec 304.2. Tags shall be located at equipment cable entrances and on each side of a deck or bulkhead penetration.

3.3.9 New wires grouped in harnesses, or single wires more than 12 inches in length (unless they are unique in color or size and can be traced visually from one end to the other), shall be marked for identification. Marking may be accomplished by stamping the identification symbol on the wire insulation, by sliding a sleeve type wire marker over the wire insulation. Marking shall be applied in a permanent manner, resistant to water, heat, oil, and abrasion.

3.3.10 Reuse existing stuffing tubes when practicable & use existing wire ways whenever possible for installation of new cables.

3.4 ELECTRICAL WIRING REMOVAL

3.4.1 The Contractor shall disconnect and remove cables listed in the Table to existing Galley Water Heaters (i.e. 4.5 KW) and Aft Head Water Heater (i.e. 4.5 KW). The Contractor shall remove all mounting hardware and support of the cables.

EQUIPMENTS	FROM	TO	CABLE NO.	CABLE TYPE
40 Gallon Galley Electric Hot Water Heater No.1	Main Switchboard	Disconnect Switch	1S-4P-8	TNW-4
40 Gallon Galley Electric Hot Water Heater No.1	Disconnect Switch	40 Gallon Galley Electric Water Heater No.1	1S-4P-8A	TNW-4
30 Gallon Galley Electric Hot Water Heater No.2	Main Switchboard	Disconnect Switch	1S-4P-16	TNW-4
30 Gallon Galley Electric Hot Water Heater No.2	Disconnect Switch	30 Gallon Galley Electric Water Heater No.2	1S-4P-16A	TNW-4
30 Gallon Aft Quarter Electric Hot Water Heater No.3	Main Switchboard	Disconnect Switch	1S-4P-15	TNW-4
30 Gallon Aft Quarter	Disconnect	30 Gallon Aft Quarter	1S-4P-15A	TNW-4

EQUIPMENTS	FROM	TO	CABLE NO.	CABLE TYPE
Electric Hot Water Heater No.3	Switch	Electric Water Heater No.3		

3.4.2 The Contractor shall turn over the removed cables and materials to the Coast Guard Inspector for disposal.

3.4.3 The Contractor shall remove the existing Circuit Breaker for Galley 30 Gallon Water Heater No.2 (i.e. 15 Amp) and AFT Quarter 30 Gallon Water Heater No.3 (i.e. 15 Amp).

3.4.4 The Contractor shall re-name Galley 40 Gallon Water Heater Circuit as "Spare Circuit".

3.4.5 The contractor shall remove and discard one of the Disconnect Switch of Galley Hot Water Heater. The Coast Guard Inspector will identify Disconnect Connect Switch.

3.5 WATER HEATER AND PIPING REMOVAL

3.5.1 Disconnect. Disconnect and blank off the inlet and outlet connections of the hot water tank to facilitate removal of Electric Hot Water Heaters (i.e. Two Galley Hot Water Heaters & One Aft Head Hot Water Heater).

3.5.2 Remove and discard pipe hanger(s) and support(s) located along the affected piping that were identified for removal.

3.5.3 Unsweat brazed type fittings, or cut or grind welds for welded type fittings from piping or structural welding to facilitate piping, fittings, or components removals.

3.5.4 The Contractor shall remove all associated piping for Galley Hot Water Heaters and Aft Head (2-28-3-2) Hot Water Heater as shown on CG DWG 110 WPB-533-003 (Sheet 2).

3.5.5 The Contractor shall remove existing Galley Water Heaters and Aft Head (2-28-3-2) as shown on CG DWG 110 WPB-533-003 (Sheet 2).

3.5.6 The Contractor shall rigged the Waters Heaters from the cutter and discard in accordance with the General Requirements.

3.5.6.1 Install a temporary cap on the open piping upon removals to protect the system from contamination while the system is open.

3.6 FOUNDATION REMOVAL

3.6.1 The contactor shall remove all foundations and mounting tabs associated with the Galley Water Hot Heaters & Aft Quarter Hot Water Heater. Crop and scrap existing Electric Water Heater foundation. The Contractor shall ensure the existing Galley Hot Water & AFT Quarter Hot Water Heater foundation areas are ground down flush with the adjacent plating and there are no burrs left behind.

3.6.2 Mount the new heater(s) with Contractor provided stainless steel fasteners, Type 316.

3.6.3 **COMPARTMENT RESTORATION:-:** The Contractor shall prepare all disturbed surfaces in accordance with SSPC-SP-11. Immediately after completing the surface preparation, use a suitable vacuum to clean the surfaces and remove all resulting residues. Ensure that the surfaces are free of oil, grease, dirt, soil, and all other surface contamination before coating application. Coat all prepared surfaces as follows:

3.6.3.1 Feather the surrounding surfaces to obtain a 3 inch wide, smoothly tapered boundary from the existing paint to the prepared surface.

3.6.3.2 Prepared areas are to be inspected and verified by the Coast Guard Inspector prior to application of any coating.

3.6.3.3 SURFACE COATING – Coat all prepared surfaces to match surrounding surfaces in accordance with the applicable tables of COMDTINST M10360.3. The Contractor shall ensure that all prepared surfaces are dry and free of dirt, dust, grease, grit, or other contaminants.

3.6.3.4 Upon verification from the Coast Guard Inspector on all surface preparation, prime and coat the disturbed surfaces in accordance with COMDTINST M10360.3. For surfaces to be covered with insulation, apply primer coats only.

3.7 MATERIAL

3.7.1 The Contractor shall supply all the materials (i.e. PC NO 3 through 35) listed in Material List Table of the CG DWG 110 WPB 533-003 (Sheet 1). (Note PC NO. 1& 2 will be GFE).

3.7.2 The Contractor shall supply 25 Amp & 60 Amp Circuit Breakers (i.e. Cutter to Provide Manufacturer's Name) required for new Tankless Hot Water Heater.

3.7.3 The Contractor shall supply 100 Feet cable LSTSGU-23 & 100 Feet LSTSGU-9 required for installation of new Tankless Hot Water Heater.

3.7.4 The Contractor shall supply three 25 Amp, 480 Volt AC Fuses (i.e. Disconnect Switch for Aft Head Tankless Hot Water Heater) & three 50 Amp, 480 Volt AC Fuses (i.e. Disconnect Switch for Galley Tankless Hot Water Heater.

3.7.5 The contractor shall provide miscellaneous hardware required for electrical installation (i.e. Nylon Stuffing Tubes, Box Connectors, Lugs, Fasteners, Wire Nuts, Tape, Cable ties & Brackets) of new Tankless Water Heaters.

3.7.6 The Contractor shall supply pipe hangers to support new piping in accordance with the ASTM F 708 or NAVSEA Dwg 804-1385781.

3.8 TANKLESS HOT WATER HEATER INSTALLATION

3.8.1 The Contractor shall fabricate the foundation for new Tankless Water Heater in accordance with CG DWG 110 WPB-533-003 (Sheet 3 & 4).

3.8.2 Template mounting holes from GFE Tankless Hot Water Heater and mount the Water Heater as shown on the CG DWG 110 WPB-533-003 (Sheet 3&4).

3.8.3 The Outline Dimension of the new Tankless Hot Water Heater is shown for reference at the end of this specification.

3.9 TANKLESS HOT WATER HEATER PIPING INSTALLATION

3.9.1 Pipe bends shall be in accordance with the MIL-STD-1627. Minimum pipe bend radius shall be five (5) times nominal pipe diameter.

3.9.2 Install new pipe hangers in accordance with the ASTM F 708 or NAVSEA Dwg 804-1385781

3.9.3 The Contractor shall install GFE Tankless Hot Water Heaters piping in accordance with the CG DWG 110 WPB-533-003. Modify as necessary and connect the hot and cold water lines to the new GFE Tankless Hot Water Heaters.

3.9.4 When and where necessary, in the presence of the Coast Guard Inspector, disinfect disturbed potable water piping and components in accordance with COMDTINST M6240.5. Tank filling and pumping associated with the disinfection process shall be the responsibility of the Contractor. Dispose all fluids used disinfection process in accordance with federal, state, and local regulations.

3.10 TANKLESS HOT WATER HEATER ELECTRIC WIRING INSTALLATION

3.10.1 The Contractor shall install new 25 Amp and 60 Amp Circuit Breaker at previously removed Circuit Breaker location and install Name Plate on Main Switchboard (i.e. 60 AMP GALLEY TANKLESS HOT WATER HEATER & 25 AMP AFT HEAD QUARTERS TANKLESS HOT WATER HEATER).

3.10.2 The Contractor shall install new cable (LSTSGU-9) from Main Switchboard to Disconnect Switch near AFT Head (2-28-3-2) Tankless Hot Water Heater. The Contractor shall install cable (LSTSGU-9) from Disconnect Switch to AFT Head Tankless Hot Water Heater.

3.10.3 The Contractor shall install new cable (LSTSGU-23) from Main Switchboard to Disconnect Switch near Galley Tankless Hot Water Heater. The Contractor shall install cable (LSTSGU-23) from Disconnect Switch to Galley Tankless Hot Water Heater.

3.10.4 Galley Tankless Hot Water Disconnect Switch: The Contractor shall install 50 Amp Fuses inside the disconnect switch**.**

3.10.5 AFT Head Quarter Disconnect Switch: The Contractor shall install 25 Amp Fuses inside the disconnect switch.

3.10.6 Terminate cables in accordance with the Tech Pub 4633 and manufacturer's instruction.

3.11 ACCEPTANCE TESTING

3.11.1 Clearing Tags – As needed for testing, restore all affected systems and clear tags in accordance with the General Requirements.

3.11.2 Test Performance – All acceptance tests shall be performed in the presence of the Coast Guard Inspector. Provide a written report to the Coast Guard Inspector of all test results within one week of test completion.

3.11.3 Hydrostatic Test – Test components or systems where pressure boundary parts were replaced to 150% of rated pressure using potable water or other suitable liquid compatible with the system. Rated pressure shall be the lowest rated pressure of the components being tested together. No leakage shall be allowed after holding test pressure for a minimum of 10 minutes. In lieu of Hydrostatic Test, the Contractor has option to perform Non-Destructive Test of newly installed welded or brazed piping joints in accordance with NAVSEA T 9074-AS-GIB-010/271.

3.11.4 Tightness Test – Test components or systems where seals were disturbed to 100% of rated pressure using potable water or other suitable liquid compatible with the system. Rated pressure shall be the lowest rated pressure of the components being tested together. Tightness testing may also be performed by running the system at its highest normal operating pressure. No leakage shall be allowed after holding test pressure for a minimum of 10 minutes.

3.11.5 Continuity Checks and Megger Readings. The Contractor shall perform continuity checks of each reconnected and reinstalled cables. Continuity checks shall be from distribution panel to each terminal end. The Contractor shall also take megger readings for each reconnected cable between each phase and from each phase to ground to ensure proper cable reconnection and insulation.

3.11.6 Clearance Check – For new equipment installed by this work item, open all doors to verify adequate servicing access and interference free operation. Similarly, verify that access to existing nearby equipment is not adversely affected by the new installation.

3.11.7 Operational Test – The Contractor shall perform Operation Installation Test No.1 & No.2 in accordance with the CG Tech Pub 4633 in the presence of the Coast Guard Inspector.

3.12 RESTORATION

3.12.1 Prepare and paint all new and disturbed surfaces in accordance with the General Requirements.

3.12.2 Restore all interferences to their original condition in accordance with the General Requirements.

3.12.3 Clearing Tags – Restore all affected systems and clear any remaining tags in accordance with the General Requirements.

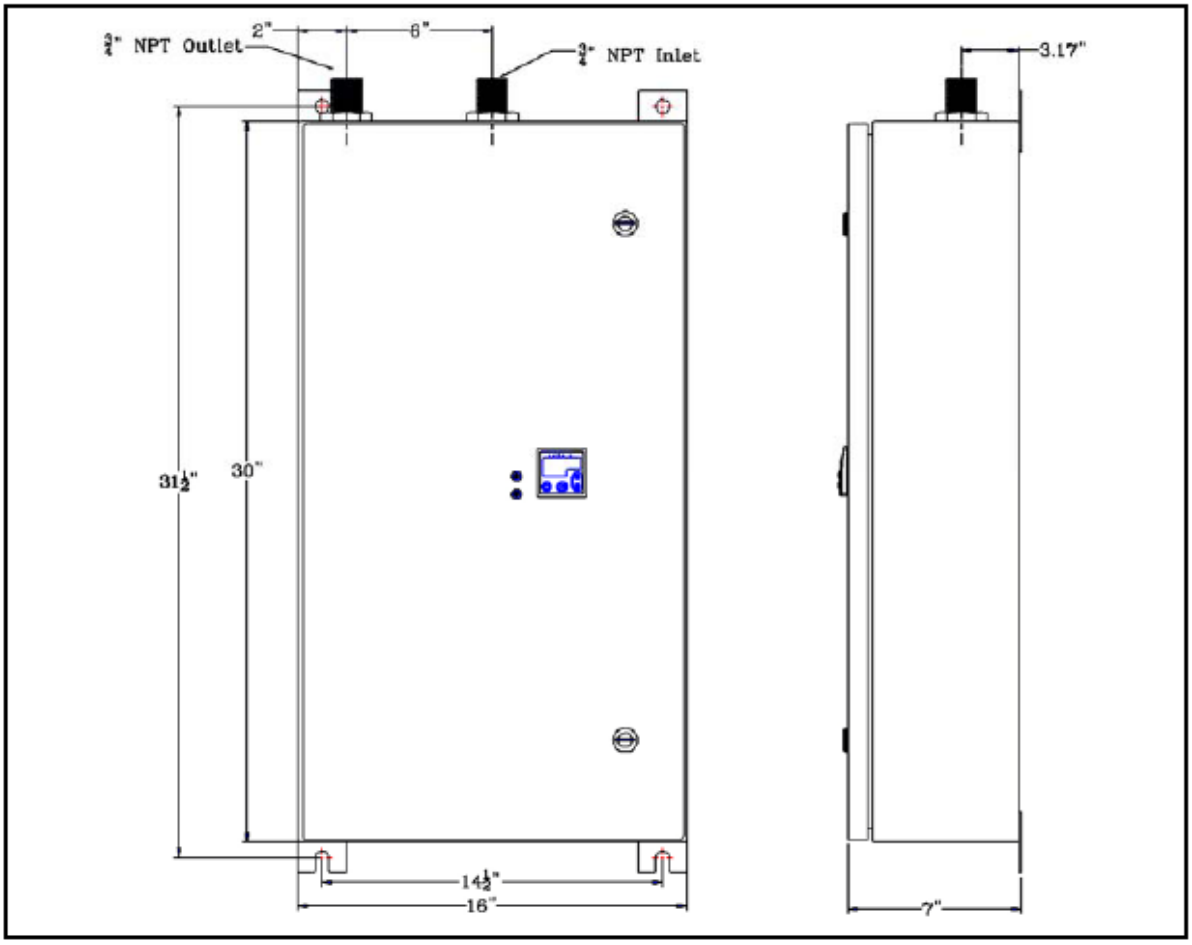


Diagram 1 C1N 18kW

OUTLINE DIMENSION FOR 18 KW TANKLESS WATER HEATER

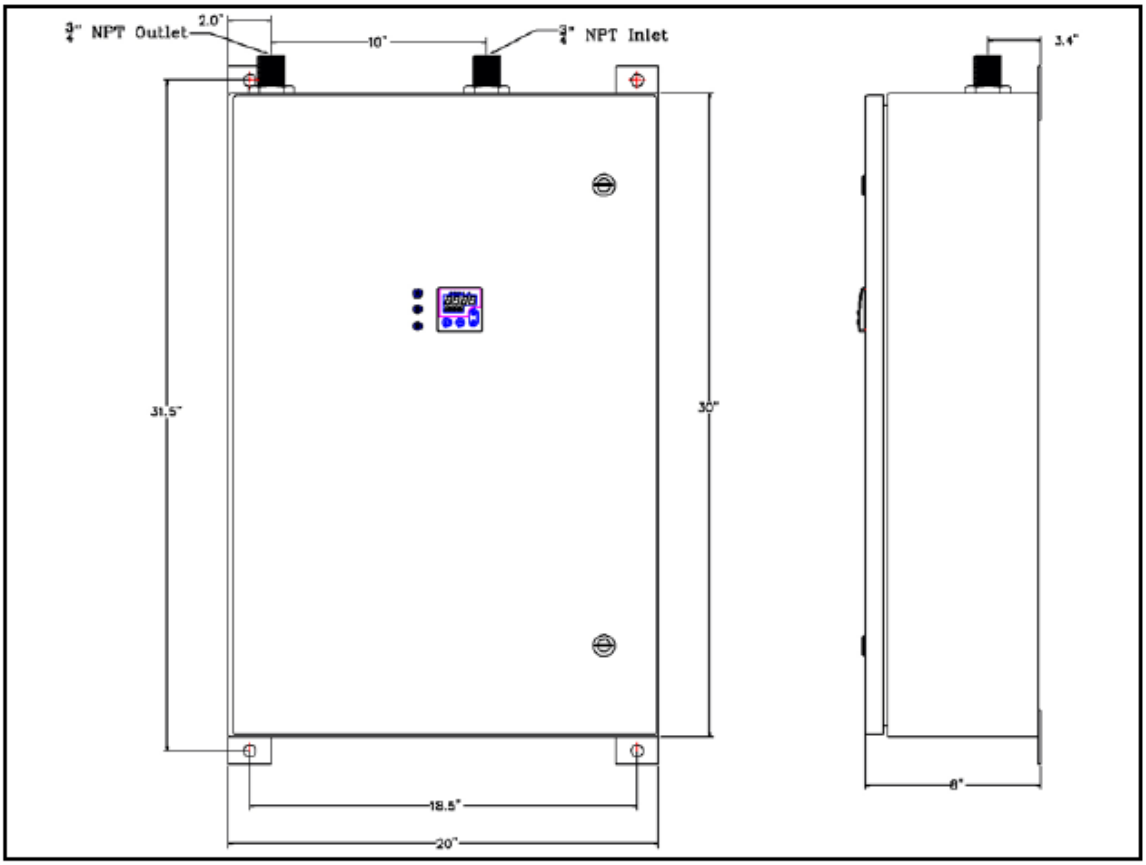
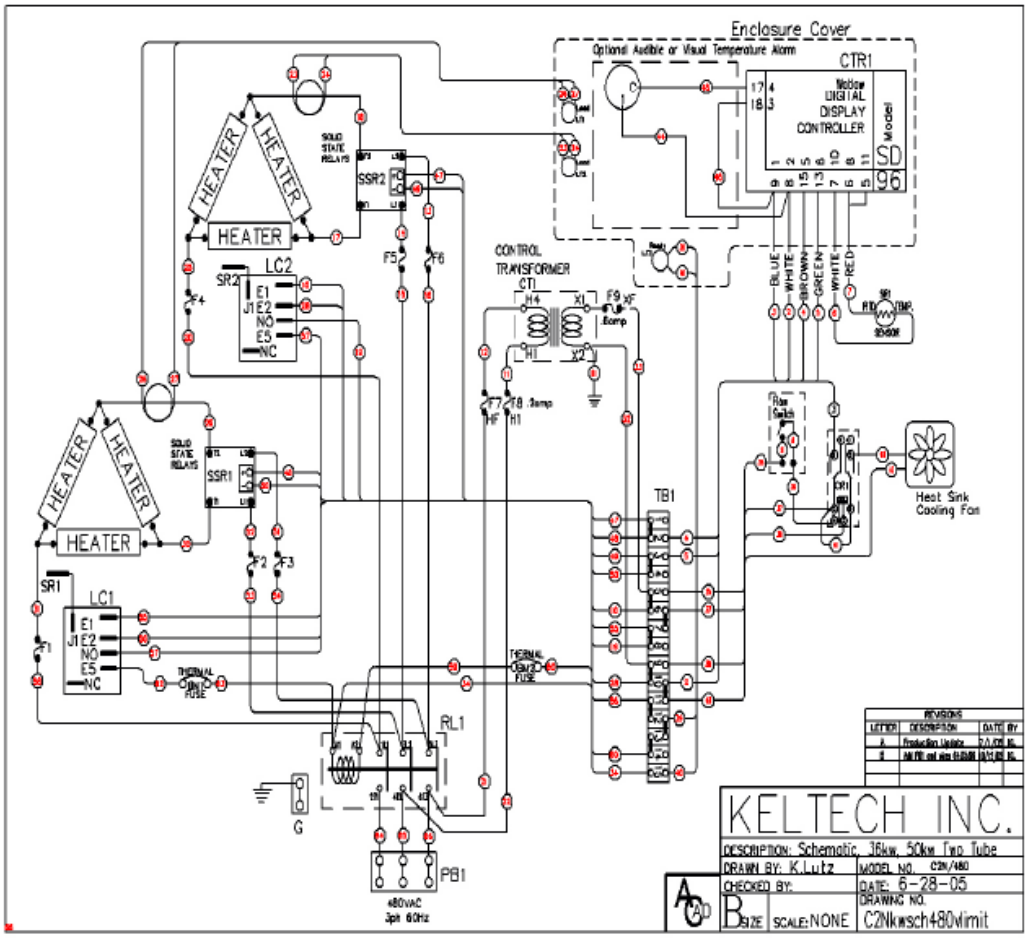


Diagram 3 C2N 36kW

OUTLINE DIMENSION FOR 36 KW TANKLESS WATER HEATER

C2N MODELS


Enclosure Cover
Optional Audible or Visual Temperature Alarm
CTR1
DIGITAL DISPLAY CONTROLLER
Model SD 96
HEATER
HEATER
HEATER
HEATER
HEATER
SSR1
SSR2
SOLID STATE RELAYS
LC1
LC2
SR1
SR2
E1
J1 E2
NO
E5
NC
CONTROL TRANSFORMER
CT1
H4
X1
H1
X2
F1
F2
F3
F4
F5
F6
F7
F8
F9
.8amp
THERMAL FUSE
RL1
G
PB1
480VAC 3ph 60Hz
TB1
BLUE
WHITE
BROWN
GREEN
WHITE
RED
RTD TEMP.
Heat Sink Cooling Fan
CR1
REVISIONS
LETTER
DESCRIPTION
DATE BY
KELTECH INC.
DESCRIPTION: Schematic, 36kw, 50kw Two Tube
DRAWN BY: K.Lutz
MODEL NO. C2N/480
CHECKED BY:
DATE: 6-28-05
DRAWING NO.
B SIZE
SCALE: NONE
C2Nkwsch480vlimit

AFT HEAD (2-28-3-2) 18 KW TANKLESS HOT WATER HEATER INSTALLATION

GALLEY 36 KW TANKLESS HOT WATER HEATER INSTALLATION

ITEM 6: SINGLE POINT DAVIT (GEN) LEVEL 2 INSPECT AND REPAIR

MI_58300_AK_0604_110B

1 SCOPE

The intent of this item is to renew davit's wire rope, perform service, inspect, and test the Appleton SEB 1.8-18-18 Single Point Davit (SPD), Switch Box and Controls, Hydraulic Power Unit (HPU), and structure for integrity.

Government Furnished Property: NONE

2 REFERENCES

Coast Guard Drawings: NONE

Applicable Documents:

CG Tech Pub 2937, Manufacturer's Instruction Book–SWBS Group(s) 558-583
CG Tech Pub 3093, Information Handbook
CG Tech Pub 3108, Auxiliary Systems–SWBS 500 (Volume 4)
MIL-G-18458, 32, Not 1; Grease, Wire Rope and Exposed Gear
International Standard Organization (ISO) 4406, 7/13/2004; Hydraulic Fluid Power — Fluids — Method for Coding the Level of Contamination by Solid Particles
American Petroleum Institute (ANSI/API) 9A-04, 25TH Edition; Specification for Wire Rope and ISO 10425:2003, Steel Wire Ropes for the Petroleum and Natural Gas Industries–Minimum Requirements and Terms for Acceptance
Naval Ships' Technical Manual, Chapter 589, Cranes, 12/1/2001
Naval Ships' Technical Manual, Chapter 613, Wire and Fiber Rope and Rigging, 8/30/1999

3 REQUIREMENTS

The Contractor shall provide all labor and material to accomplish the following in accordance with the General Requirements:

3.1 GENERAL

3.1.1 Wash down, visually inspect, and operational test the Appleton SEB 1.8-18-18 Single Point Davit (SPD) including the Control Console and Hydraulic Power Unit (HPU) onboard the cutter. The contractor shall submit a Condition Found Report (CFR) to the Coast Guard Inspector with the inspection and test results identifying any deficiencies that may require immediate attention for continued safe operation of the davit. The report shall also identify and recommend any maintenance required to the davit and its components to extend operation until the next scheduled overhaul (2 years). Do not remove any bushing for inspection. Inspect all bushings inplace.

3.1.2 In the presence of the Coast Guard Inspector, inspect and test all affected equipment and systems to document original condition. Submit a Condition Found Report (CFR) noting any discrepancies in equipment and system operation. Use CG Tech Pub 3093 for guidance.

NOTE: The Coast Guard will launch the Rigid Hull Inflatable Boat (RHIB).

3.1.3 Take a representative oil sample from the single point davit hydraulic system at a return line location designated by Coast Guard Inspector and send it out for particle and water analysis. Analysis shall include particle size, populations, and a classification in accordance with ISO 4406, code 19/16. Submit report on results within the first week of the availability.

3.1.4 The internal portions of hydraulic systems (pipe, hoses, and components) are particularly susceptible to corrosion and contamination damage. Maintain a surface oil film on internal parts and exclude water moisture & air borne contaminants with effective covering and sealing (plastic cap, metal cap, blank flange with a gasket) of all openings. Cap (plastic cap, metal cap, blank flange with a gasket) all open lines immediately after breaking. Protect all pipe, hoses, and components while transporting to and from shop.

3.2 CLEANLINESS

3.2.1 Keep the immediate vicinity of all hydraulic component work clean. Do not accomplish welding, chipping, cutting, grinding, burning or blasting in the same space concurrent with disassembly, inspection, overhaul or reassembly of hydraulic components.

3.3 RHIB INSPECTION AND STOWAGE

3.3.1 Hoist the boat out of the water and place it on the boat cradle, which will enable the Coast Guard to inspect and perform minor maintenance. Locate the boat in the cradle near the cutter. Weigh the RHIB in the presence of the Coast Guard Inspector (approximately 1450 lbs), record the weight and provide a written report including weight, outfit and fuel level to the Coast Guard Inspector. Ensure no liquid in the bilge.

3.4 TAG-OUT

3.4.1 Secure, isolate, and tag-out all affected mechanical, piping, and electrical systems in accordance with the General Requirements. Discharge all hydraulic pressure from the system and its components (including console accumulator) prior to working on the davit.

3.5 DAVIT INSPECTION

3.5.1 Wash down and thoroughly clean the entire davit and associated components with fresh water and detergent. Verify that the load rating is clearly identified on the SPD and that a test plate is present and identifies that last date of testing.

3.5.2 Perform a “walk around” visual inspection of the davit structure, boom, and pedestal for cracks, deformation, and corrosion. Check that all bolts are secured and properly torqued in accordance with CG Tech Pub 3093.

3.5.3 Perform a visual inspection of all hoisting fittings on the davit (release hook or release mechanism) and ensure that the release latch locks and releases freely without binding. Inspect limit switch assembly for damage, frayed wires or loose connections.

3.6 WIRE ROPE REMOVAL

3.6.1 Remove and dispose of wire rope and end fitting from the davit by paying out the entire length from the drum in accordance with all federal, state, and local laws and regulations. Remove down stop control assembly. Remove wire rope from the drum by tapping out the cable wedge at the bitter end connection. Retain quick release hook or hook release mechanism (for RHIB’s with lifting frame) for reuse.

3.7 SHEAVE INSPECTION

3.7.1 Measure sheave wears using a worn groove sheave gage. Minimum allowable sheave groove radius is 0.190", in accordance with the enclosed Figure "Sheave Inspection Sheet." Inspect sheave's pivot pins and bushings for wear. Inspect sheave housing for cracked welds. Damage or deterioration

3.8 LUFFING AND TELESCOPE CYLINDERS

3.8.1 Visually inspect cylinder pins, and bushings for wear. Inspect for leakage in the vicinity of the stem and packing gland and service in accordance with CG Tech Pub 3093.

3.9 CYLINDER TEST

3.9.1 In the presence of the Coast Guard Inspector, in-place pressurize both sides of the cylinder to 2,350 psig and hold for 10 minutes to test for leakage, no pressure drop allowed. No leakage is allowed.

3.9.1.1 Using the controllers, place the cylinder in the fully extended position. Remove the hydraulic line from the rod end port of the cylinder, and cap the line.

3.9.1.2 Using the controllers again, apply hydraulic pressure to the extended cylinder. Observe the open port at the rod end for any hydraulic fluid leakage. If there is a flow of hydraulic fluid, the cylinder packing may be renewed by a contract change. Cylinder disassembly, if required, may be the subject of a contract change.

3.10 SWING ASSEMBLY

3.10.1 Visually inspect the swing gear and pinion for excessive wear and damage. Check that the pinion gear caps and cap screws are secured. Renew oil in gear reducer in accordance with CG Tech Pub 3093.

3.10.2 Inspect swing motor and stop valve for leakage.

3.11 WINCH ASSEMBLY

3.12 Wire brush winch drum and inspect surface for cracks, wear, damage or corrosion. Change oil in accordance with CG Tech Pub 3093.

3.13 HYDRAULIC POWER UNIT (HPU)

3.13.1 Check fluid level in tank is full (15 gallons capacity) and renew the filter. Renew tank vent filter. Renew pressure filter.

3.13.2 Inspect welds of HPU frame and welding of frame to deck for cracks or corrosion. Check Coupling (motor to pump) for alignment and wear. Inspect motor and pump shock mounts for wear or loose hardware. Check the electric motor resistance reading.

3.13.3 Activate hydraulic system; verify that davit supply pressure is 2350 psig maximum with pump delivery of 5 gpm. Verify that operating pressure at control console is 2350 psig. Check pressure settings and make adjustments in accordance with CG Tech Pub 3093. Check full load motor amperage draw, voltage, and frequency and submit a CFR. Relief valve is set at 2500 psig. Check the setting of the SPD relief valve. Adjust as required.

3.13.4 Visually check for leaking connections, worn or damaged hoses and fittings, or any other defect.

3.13.5 Check that low level alarm, immersion heater, temperature sensing probe, controller, and thermostat are functioning, as applicable.

3.14 SWITCH BOX

3.15 Remove the cover at the front of the switch box and visually inspect for damage or corrosion. Inspect for loose hardware. Also check for presence of moisture.

3.16 CONTROLS

3.16.1 Inspect controls operations and ensure that they function in accordance with CG Tech Pub 3093 and operate freely.

3.16.2 Check control valve assembly for leaks.

3.17 WIRE ROPE RENEWAL

3.18 Renew wire rope and end fittings 3/8"Dia., 6x37, 60', Extra Improved Plow Steel (XIPS), preformed, and IWRC in accordance with NSTM Chapters 613 and 589. The Contractor shall pressure lubricate the new wire rope in accordance with NSTM Chapter 613 and the lubricant shall meet MIL-G-18458. Kirkpatrick wire rope Lube/Dynalube is known by the Government to meet MIL-G-18458. Wire rope shall meet or exceed API Specifications 9A. Renew wire rope cable wedge (drum attachment). Ensure kinking or bird caging does not occur on wire rope during renewal. Inspect down stop assembly for wear, damage and deterioration. Prior to returning davit to use, remove excess grease from the wire rope.

3.19 LUBRICATION

3.19.1 Lubricate all grease fittings in accordance with CG Tech Pub 3093. Ensure that all gearboxes are refilled.

3.20 NOTIFY THE COAST GUARD INSPECTOR

3.20.1 The Coast Guard is responsible for breasting-out the cutter if required and making the necessary adjustments to gangways, shore ties and mooring lines as required for testing. Notify the Coast Guard Inspector at least 72 hours before testing and shall coordinate all cutter movement with the Coast Guard.

3.21 CLEARING TAGS

3.21.1 Restore all affected equipment and systems and clear tags in accordance with the General Requirements.

3.22 PRE-TEST INSPECTION

3.22.1 Prior to operating the davit, perform a careful inspection of all hoisting fittings, slings, padeyes, and shackles to determine any apparent weakness in the fittings or in their attachment to the boat, and to determine whether all parts appear to be in operable condition.

3.23 TESTING AND INSPECTION

3.23.1 Test RHIB and rigging separately and test the davit separately:

3.23.2 Do not use the RHIB for a test weight to test the davit.

CAUTION

Under no circumstances shall test load exceed those load limitations RHIB vendor has placed on RHIB lifting rigging or RHIB lift points.

3.23.3 Visually inspect RHIB Boat straps, padeyes, and shackles for signs of wear and/or damage. If damage or wear is discovered notify Coast Guard Inspector prior to commencing RHIB weight test. In the presence of CG Inspector, perform weight test on boat straps, using Contractor furnished weights/water bladder and a davit that will

test straps to 150 percent of their normal capacity. Consult Coast Guard Inspector for actual test weight to be used. After completion of weight test, again perform a visual inspection of boat straps, padeyes, and shackles for signs of wear and/or damage. Submit a CFR.

3.23.4 Following each test, perform an inspection in the presence of the Coast Guard Inspector to ensure that no parts have been unduly strained and to determine whether all parts appear to be in proper condition.

3.24 STATIC TEST

3.24.1 Using Contractor furnished weights/water bladder, test the davit to 150 percent of normal hoisting capacity. Ensure that the weight will not strike the cutter or damage it in any way. Raise the weight with the boom six inches and hold it for ten minutes. Lower the weight and perform an inspection on davit. Inspect davit and all components to determine any apparent weakness in the fittings, components, and foundation bolts, and to determine whether all parts appear to be in proper condition.

3.24.1.1 Inspect the davit and components and submit a CFR.

3.24.1.2 Typical defects to look for are:

3.24.1.2.1 Elongated, deformed or cracked shackles.

3.24.1.2.2 Loss in strength due to corrosion or deterioration.

3.24.1.2.3 Elongated, frayed or worn manila, nylon or wire rope.

3.24.1.2.4 Loosening of wire rope fittings.

3.24.1.2.5 Absence of lubrication on cables, rollers and sheaves.

3.24.1.2.6 High strands, bird caging or kinks in wire rope.

3.25 DAVIT TEST

3.25.1 Perform davit test numbers 1, 2, 3, 6 and 7 in accordance with CG Tech Pub 2937. The Contractor shall supply blank test forms, which contain the same information as the forms in CG Tech Pub 2937. All weights/water bladders shall be supplied by the Contractor, with verification from the Coast Guard Inspector. Weights shall be measured using a calibrated load cell. Perform tests while the cutter is waterborne. Submit a CFR.

3.25.1.1 No load test

3.25.1.2 No load test (test number 1)

3.25.1.3 Emergency swing brake (test number 2)

3.25.1.4 Break in load test, test weight = 1,750 lbs (test number 3)

3.25.1.5 Proof test 150%, test weight = 2625 lbs (test number 6)

3.25.1.6 Normal working load verification test, test weight = 1,750 lbs (test number 7)

3.25.2 Any defects found shall be corrected before testing continues.

3.25.3 Check for oil leaks and proper operation of the hydraulic system. Observe and record the operation of all mechanisms and any unsatisfactory condition noted.

3.26 TEST REPORT

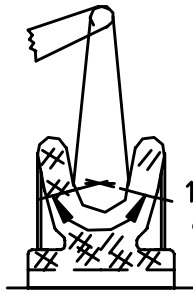
3.26.1 Submit a CFR of all, tests and inspections to the Coast Guard Inspector within 24 hours.

3.27 LABEL PLATE

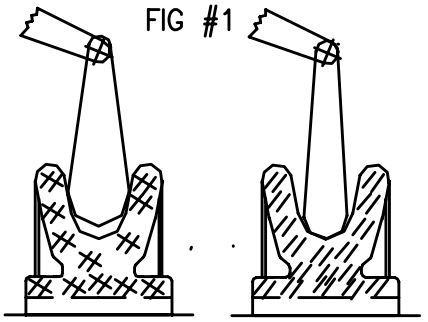
3.27.1 Provide and attach an engraved brass label plate showing the Rated Working Load, Static Test Load (150 percent load test), Place and Date of Test. The Coast Guard Inspector will designate the location for this plate.

3.28 COORDINATION

3.28.1 All tests and inspections with the designated Coast Guard Inspector to minimize production delays.

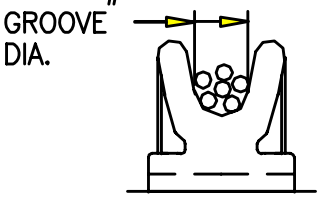


CORRECT FIT UP
FIG #1

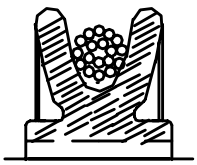


TOO TIGHT OF FIT
FIG #2

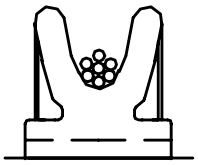
TOO LOOSE OF FIT
FIG #3



NEW ROPE IN A NEW GROOVE

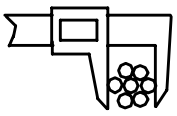


NEW ROPE IN A WORN GROOVE



WORN ROPE IN A WORN GROOVE

CORRECT WAY TO MEASURE WIRE ROPE DIAMETER



SHEAVE INSPECTION SHEET

SHEAVE/WIRE INSPECTION SHEETS

UNDER NORMAL CONDITIONS DRM, SHEAVES AND OTHER MACHINE PARTS WHICH COME INTO CONTACT WITH WIRE ROPE AND SUBJECT TO WEAR ARE PERIODICALLY INSPECTED. AS AN ADDITIONAL PRECAUTION ROPE RELATED PARTS PARTICULARLY IN THE AREAS ILLUSTRATED SHOULD BE INSPECTED PRIOR TO THE INSTALLATION OF THE NEW WIRE ROPE.

THE FIRST ITEMS TO BE CHECKED WHEN EXAMINING SHEAVES AND DRUMS IS THE CONDITION OF THE GROOVES AS ILLUSTRATED IN FIGURE #1 TO CHECK SIZE, CONTOUR & WEAR, A GROOVE GAGE IS USED. THE GAGE SHOULD CONTACT THE GROOVE FOR ABOUT 150 DEGREES OF ARC.

TWO TYPES OF GROOVES ARE IN GENERAL USE AND IT IS IMPORTANT TO NOTE WHICH OF THESE ARE BEING USED. THE TWO DIFFER BY THEIR RESPECTIVE PERCENTAGE OVER NOMINAL.

FOR NEW OR RE-MACHINED GROOVES THE GROOVE GAGE IS NOMINAL PLUS THE FULL OVERSIZE PERCENTAGE. THE GAGE CARRIED BY MOST WIRE ROPE REPRESENATIVES IS USED FOR WORN GROOVES AND IS MADE NOMINAL PLUS 1/2 THE OVERSIZE PERCENTAGE.

THIS LATER GAGE IS INTENDED TO ACT AS A SORT OF "NO GO" GAGE. ANY SHEAVE WITH A GROOVE SMALLER THAN THIS MUST BE RE-GROOVED OR EXISTING ROPE WILL BE DAMAGED.

WHEN THE SHEAVE IS RE-GROOVED IT SHOULD BE MACHINED TO THE DIMENSIONS FOR NEW & MACHINED GROOVES GIVEN IN THE MIN. ALLOWABLE GROOVE DIAMETERS.

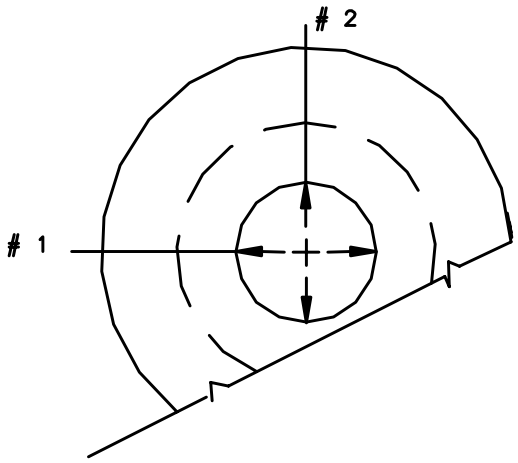
Min. Allowable Diametric Clearances Between New Rope Dia. For Orig Groove & Worn Groove

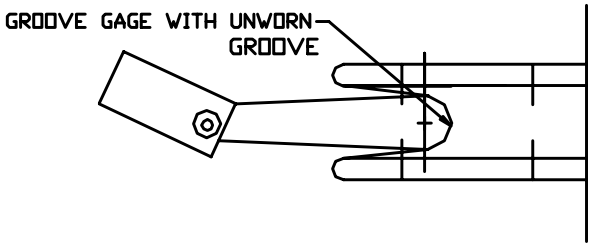
NOMINAL NEW ROPE DIA	MIN. ALLOWABLE DIA. OF GROOVE FOR NEW ROPE	MIN. WORN GROOVE DIA. FOR NEW ROPE
1/4	0.270	0.258
5/16	0.334	0.320
3/8	0.402	0.380
7/16	0.468	0.440
1/2	0.542	0.512
9/16	0.606	0.576
5/8	0.668	0.640
3/4	0.802	0.760
7/8	0.936	0.880
1	1.086	1.026

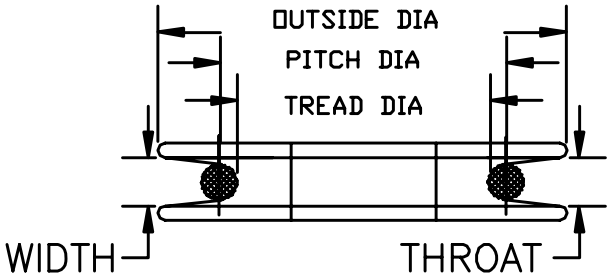
USCGC _____

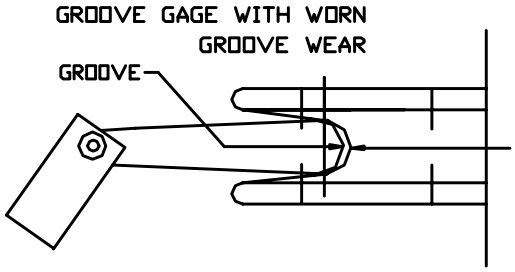
CG INSPECTOR_____

DATE _____ SHEET 1 OF 2









SHEAVE DESIGNATION	INDICATED GROOVE WEAR	I.D. AT # 1	I.D. AT # 2

SHEAVE INSPECTION SHEET

USCGC CUTTER NAME _____
C.G. INSP _____
DATE _____

SHEET 2 OF 2

ITEM 7: GREY WATER HOLDING TANK(S) CLEAN & INSPECT

MI_59310_JAH_0105_110B

1 SCOPE

The intent of this item is to clean and inspect the Grey Water Tank(s).

Government Furnished Property: NONE

2 REFERENCES

Coast Guard Drawings:

110B-WPB 85-12, Rev -; Booklet of General Plans (Supercedes 110B-WPB-085-7)

Applicable Documents:

MIL-PRF-1149, Rev D; Gasket Materials, Synthetic Rubber, 50 and 65 Durometer Hardness, 6/10/1998
Naval Ships' Technical Manual, Chapter 593, Pollution Control

3 REQUIREMENTS

The Contractor shall provide all labor and material to accomplish the following in accordance with the General Requirements:

3.1 GENERAL

3.1.1 Provide sanitary services while work is being accomplished on this item in accordance with Definite Item "Temporary Services, Dockside Provide."

3.1.2 The concerned grey water tank(s) are listed in the table below. See the CG Dwg referenced above for arrangement of the concerned work areas.

3.1.3 Ship's force will pump down all tank(s) listed in the table below using the installed ejection system.

Table 3.1.A

Cutter	Tank Number	Contents	Capacity (gallons)	Low Suction (gal)
110 WPB	3-28-0-W	Grey Water	144 gal	
	3-22-0-Q	Grey Water	70 gal	

3.2 INTERFERENCES

3.2.1 In the presence of the Coast Guard Inspector, inspect and operationally test all affected systems and equipment to document the original condition. The Contractor shall submit a CFR noting any discrepancies in equipment and system operation.

3.2.2 Tag-Outs – Secure, isolate, and tag-out all affected mechanical, piping, and electrical systems in accordance with the General Requirements.

CAUTION

Ensure that all personnel practice careful personal hygiene to avoid contracting hepatitis and other communicable diseases when working on the sewage system. Flammable and toxic vapors may be present in sewage, grey water sludge or other tank contaminants. These vapors may be released from the tank into the compartment's atmosphere during the cleaning process. Do not leave the tank(s) open until certified safe. Do not allow open flames, sparking electrical apparatus, electric lights, flashlights, or regular tools in or near the open tank(s) until the tank(s) are certified safe. During work on this item, ensure that sewage and sewage vapors from the piping do not contaminate adjacent compartments.

3.3 SUPPORT

3.3.1 Follow procedures and precautions set forth in NSTM Chapter 593, Section 4.

3.3.2 Provide adequate explosion proof lighting to illuminate the work area during cleaning and inspection.

3.3.3 Notify the Coast Guard Inspector prior to opening any accesses or covers to affected tank(s). Open all accesses and covers to affected tank(s) using non-sparking tools.

3.4 GAS FREE CERTIFICATION

3.4.1 Remove and dispose all remaining contents, clean, and ventilate as necessary to obtain gas free certification in accordance with the General Requirements. Dispose of all affected tank contents in accordance with local, state, and federal laws and regulations.

3.4.2 Gas free and certify the affected compartments/tanks in accordance with the General Requirements. All affected compartments/tanks must be certified as "Safe for Personnel – Safe for Hotwork" for the duration of work performed on this item.

3.4.3 Gas Free Certificates indicating the current status of each compartment/tank shall be posted on the Quarterdeck and at each open access to the compartments/tanks. Provide one copy to the Coast Guard Inspector.

3.5 TANK CLEANING

3.5.1 Plug all inlet and outlet piping in the tank to prevent contaminants from entering the tank. Use plugs with an attached lanyard, ring or other system that will ensure plugs are not lost in the pipe openings. Maintain a plug accountability log outside the tank(s) to prevent any of the installed temporary plugs from being lost inside the tank or forgotten inside at tank closure.

3.5.2 Protect tank level sensing units prior to cleaning. Wrap or cover in a manner that will not cause any damage to the sensing units during the tank cleaning process.

3.5.3 Clean all tank internal surfaces in accordance with NSTM Chapter 593.

3.5.4 Remove and dispose of all remaining residual water, sludge, marine or fungus growth, cleaning agent, and foreign material from the tank(s). Remove all foreign material and film from all tank surfaces. Wipe the interior of the tank dry before inspection.

3.6 INSPECTION – Inspect cleanliness and condition of the tank(s) listed in Table 3.1.A with the Coast Guard Inspector. Inspection shall include, but is not limited to: tank plating, structural strength members, vents, pipes and pipe hangers, tank level indicators, and coating condition. Submit a CFR.

3.7 RESTORATION

3.7.1 Upon acceptance of all tank conditions by the Coast Guard Inspector, remove all plugs, tools, and foreign objects from the sewage and grey water tank(s). Allow the Coast Guard Inspector the opportunity to verify that all rags, plugs, tools, and foreign material are removed from the tank(s) before closing.

3.7.2 Close up the grey water tank(s) renewing all gaskets on the access covers. Use new 1/8" synthetic rubber gaskets conforming to MIL-PRF-1149.

3.7.3 Clearing Tags – Restore all affected systems and clear tags in accordance with the General Requirements.

3.7.4 In the presence of the Coast Guard Inspector, the Contractor shall fill the tank(s) to vent level to check for leaks, to check seals, and for correct operation. Correct all deficiencies and retest.

3.7.5 Test all pumps and alarms in automatic and manual modes for proper operation in the presence of the Coast Guard Inspector.

3.7.6 Upon completion of testing and, in the presence of the Coast Guard Inspector, pump tank(s) to the limit of the ship's installed pumps.

3.7.7 Restore all affected systems to normal operating condition.

3.7.8 Restore the work area to a clean condition. Spills or contamination in any area shall be washed down with hot fresh water and detergent and rinsed clean with fresh water in accordance with NSTM Chapter 593.

3.8 Coordinate all inspections with the designated Coast Guard Inspector to minimize production delays.

ITEM 8: SEWAGE HOLDING TANK CLEAN & INSPECT

MI_59310_JAH_0105_110B

1 SCOPE

The intent of this item is to clean and inspect the Sewage Holding Tank(s).

Government Furnished Property: NONE

2 REFERENCES

Coast Guard Drawings:

110B-WPB 85-12, Rev -; Booklet of General Plans (Supercedes 110B-WPB-085-7)

Applicable Documents:

MIL-PRF-1149, Rev D; Gasket Materials, Synthetic Rubber, 50 and 65 Durometer Hardness, 6/10/1998
Naval Ships' Technical Manual, Chapter 593, Pollution Control

3 REQUIREMENTS

The Contractor shall provide all labor and material to accomplish the following in accordance with the General Requirements:

3.1 GENERAL

3.1.1 Provide sanitary services while work is being accomplished on this item in accordance with Definite Item "Temporary Services, Dockside Provide."

3.1.2 The concerned work area is the sewage holding tank. See the CG Dwg referenced above for arrangement of the concerned work areas.

3.1.3 Ship's force will pump down the tank listed in the Table 3.1.A below using the installed ejection system through the shore tie connection. Ship's force will flush the tank with water a minimum of three (3) times and pump the tank down to the limit of the ship's installed pumps.

Table 3.1.A

Cutter	Tank Number	Contents	Capacity (gallons)	Low Suction (gal)
110 WPB	3-16-0-K	Sewage	554 gal	

3.2 INTERFERENCES

3.2.1 In the presence of the Coast Guard Inspector, inspect and operationally test all affected systems and equipment to document the original condition. The Contractor shall submit a CFR noting any discrepancies in equipment and system operation.

3.2.2 Tag-Outs – Secure, isolate, and tag-out all affected mechanical, piping, and electrical systems in accordance with the General Requirements.

CAUTION

Ensure that all personnel practice careful personal hygiene to avoid contracting hepatitis and other communicable diseases when working on the sewage system. Flammable and toxic vapors may be present in sewage, grey water sludge or other tank contaminants. These vapors may be released from the tank into the compartment's atmosphere during the cleaning process. Do not leave the tank open until certified safe. Do not allow open flames, sparking electrical apparatus, electric lights, flashlights, or regular tools in or near the open tank until the tank is certified safe. During work on this item, ensure that raw sewage and sewage vapors from the piping do not contaminate adjacent compartments.

3.3 SUPPORT

3.3.1 Follow procedures and precautions set forth in NSTM Chapter 593, Section 4.

3.3.2 Provide adequate explosion proof lighting to illuminate the work area during cleaning and inspection.

3.3.3 Notify the Coast Guard Inspector prior to opening any accesses or covers to tank. Open all accesses and covers to the tank using non-sparking tools.

3.4 GAS FREE CERTIFICATION

3.4.1 Remove and dispose all remaining contents, clean, and ventilate as necessary to obtain gas free certification in accordance with the General Requirements. Dispose of all tank contents in accordance with local, state, and federal laws and regulations.

3.4.2 Gas free and certify the affected compartments/tanks in accordance with the General Requirements. All affected compartments/tanks must be certified as "Safe for personnel – Safe for hotwork" for the duration of work performed on this item.

3.4.3 Gas Free Certificates indicating the current status of each compartment/tank shall be posted on the Quarterdeck and at each open access to the affected compartments/tanks. Provide one copy to the Coast Guard Inspector.

3.4.4 Contractor shall take all necessary precautions to ensure that sewage contaminants are contained within the sewage treatment room.

3.5 TANK CLEANING

3.5.1 Plug all inlet and outlet piping in the tank to prevent contaminants from entering the tank. Use plugs with an attached lanyard, ring or other system that will ensure plugs are not lost in the pipe openings. Maintain a plug accountability log outside the tank(s) to prevent any of the installed temporary plugs from being lost inside the tank or forgotten inside at tank closure.

3.5.2 Clean and protect tank level sensing units prior to general tank cleaning. Clean and wrap or cover in a manner that will not cause any damage to the sensing units during the tank cleaning process.

3.5.3 Clean all tank internal surfaces in accordance with NSTM Chapter 593. Completely clean sewage tank of all residual deposits.

3.5.4 Remove and dispose of all remaining residual water, sludge, marine or fungus growth, cleaning agent, and foreign material from the tank. Remove all foreign material and film from all tank surfaces. Wipe the interior of the tank dry before inspection.

3.6 INSPECTION – Inspect cleanliness and condition of the tank listed in Table 3.1.A with the Coast Guard Inspector. Inspection shall include, but is not limited to: tank plating, structural strength members, vents, pipes and pipe hangers, tank level indicators, and coating condition. Submit a CFR documenting the findings.

3.7 RESTORATION

3.7.1 Upon acceptance of all tank conditions by the Coast Guard Inspector, remove all plugs, tools, and foreign objects from the sewage tank. Allow the Coast Guard Inspector the opportunity to verify that all rags, plugs, tools, and foreign material are removed from the tank before closing.

3.7.2 Close up the sewage tank renewing all gaskets on the access covers. Use new 1/8” synthetic rubber gaskets conforming to MIL-PRF-1149.

3.7.3 Clearing Tags – Restore all affected systems and clear tags in accordance with the General Requirements.

3.7.4 In the presence of the Coast Guard Inspector, the Contractor shall fill the tank with water to vent level to check for leaks, to check seals, and for correct operation. Correct all deficiencies and retest.

3.7.5 Test all pumps and alarms in automatic and manual modes for proper operation in the presence of the Coast Guard Inspector.

3.7.6 Upon completion of testing and, in the presence of the Coast Guard Inspector, pump tank to the limit of the ship’s installed pumps.

3.7.7 Restore all affected systems to normal operating condition.

3.7.8 Restore the work area to a clean condition. Sewage spills or contamination in any area shall be washed down with hot fresh water and detergent, rinsed clean with fresh water in accordance with NSTM Chapter 593.

3.8 Coordinate all inspections with the designated Coast Guard Inspector to minimize production delays.

ITEM 9: OILY WATER SEPARATOR (OWS) MISCELLANEOUS PIPING MODIFICATIONS

EC132-075_59320_FBM_1108_110B_1331

1 SCOPE

The intent of this item is to remove and modify miscellaneous piping systems associated with the existing OWS unit Sarex Model VGS-2 and its Bilge Alarm Sarex BA-1 oil content monitor (OCM); replacement of the Bilge Alarm Sarex BA-1 OCM with a Government-furnished GFP OCD-CM Bilge Alarm with ½" Valve Discharge Manifold; and modifications of piping and components associated with the Oily Water Bilge Tank and Dirty Oil Tank. This will accomplish requirements of ECN 110-B-132 and SHIPALT 110-C-075 (dated 09-25-2000).

Government Furnished Property:

Description	Manufacturer	P/N	NSN	Qty	UOI
OCD-CM Bilge Alarm with ½" Valve Discharge Manifold (Furnished with 50 Ft of ¼" OD copper tubing)	Coffin World Water Systems.	VSBA0120	None	1	ea

2 REFERENCES

Coast Guard Drawings:

110B-WPB 85-8, Rev B; Booklet of One Line Diags (Bilge & Fire Piping), (Sheet 1 of 10)
110B-WPB 85-8, Rev B; Booklet of One Line Diags (Bilge & Fire Piping), (Sheet 9 of 10)
110B-WPB 320-8, Rev B; Power One Line Wiring Diagram & Details (Mep)
110B-WPB 501-1, Rev H; Piping System Schematics (Bilge & Fire Piping), (Sheet 1 of 7)
110B-WPB 529-2, Rev B; Oil Water Separator Piping A&D
110B-WPB 529-3, Rev A; Oily Water Separator Piping Diagram Modifications
110B-WPB 529-4, Rev A; Oily Water Separator Piping Arrangement Mods

Applicable Documents:

American Society for Testing and Materials (ASTM) A106/A106M, 2006A; Standard Specification for Seamless Carbon Steel Pipe for High-Temperature Service
American Society for Testing and Materials (ASTM) F1387, 99(2005); Standard Specification for Performance of Mechanically Attached Fittings
American Society for Testing and Materials (ASTM) A105/A105M, 2005; Standard Specification for Carbon Steel Forgings for Piping Applications
American Society for Testing and Materials (ASTM) A181/A181M, 2006; Standard Specification for Carbon Steel Forgings, For General-Purpose Piping
American Society of Mechanical Engineers (ASME) B16.11, 2005; Forged Steel Fittings, Socket-Welding and Threaded
American Society of Mechanical Engineers (ASME) B16.9, 2003; Factory-Made Wrought Buttwelding Fittings
American Society for Testing and Materials (ASTM) F1836M, 97(2007); Standard Specification for Stuffing Tubes, Nylon and Packing Assemblies (Metric)
CG Tech Pub 4541, 3/17/2003; Oily Water Separator (2 GPM)–Model Sarex Vgs-2 W/Ba-1
COMDTINST M10360.3, Rev C; Coatings and Colors Manual

Federal Specification (Fed Spec), HH-P-151F(1), Packing, Rubber Sheet, Cloth Insert, 3/27/1991
Federal Specification (Fed Spec), QQ-N-281D(2), Rev D(2), Nickel-Copper-Aluminum Alloy, Wrought (UNS) N05500, 12/7/2000
Manual No. BAMNOCD CM, July 2004; IOM Manual OCD Bilge Alarm Model OCD CM
MIL-DTL-15024, Rev F; Plates, Tags and Bands for Identification of Equipment
MIL-DTL-24643, Rev B, Sup 1A; Cables and Cords, Electric, Low Smoke, For Shipboard Use, General Specification for
MIL-F-1183, Rev J, Sup 1; Fittings, Pipe, Cast Bronze, Silver-Brazing, General Specifications for
MIL-PRF-1149D, Gasket Materials, Synthetic Rubber, 50 and 65 Durometer Hardness, 6/10/1998
MIL-R-21252B(1), Rubber Sheet, Solid, Synthetic, Shipboard Water Evaporator Gasketing, 5/8/1991
MIL-STD-1627, Rev C; Bending of Pipe or Tube for Ship Piping Systems
MIL-STD-1689, Rev A; Fabrication, Welding and Inspection of Ships Structure
MIL-STD-2035, Rev A; Nondestructive Testing Acceptance Criteria
MIL-STD-22, Rev D, Not 3; Welded Joint Design
MIL-T-16420, Rev K, Amd 1; Tube, Copper-Nickel Alloy, Seamless and Welded (Copper Alloy Numbers 715 and 706)
MLCPAC Standard Specification 074, 3/21/2003; Welding and Allied Processes
MLCPAC Standard Specification 085.1, 3/1/2000; General Requirements for Drawing Preparation
MLCPAC Standard Specification 304.1, Shipboard Electrical Cable Test, 3/1/2000
MLCPAC Standard Specification 304.2, Shipboard Electrical Cable Removal, Relocation, Splice, Repair and Installation, 3/1/2000
Naval Ship's Technical Manual (NSTM) Chapter 505, Rev 3; Piping Systems
Naval Ship's Technical Manual (NSTM) Chapter 635, Rev 3; Thermal, Fire and Acoustic Insulation
NAVSEA 0900-LP-001-7000, Acn #1; Fabrication and Inspection of Brazed Piping Systems
NAVSEA Dwg 803-1385866, Rev E; Penetrations; Bulkhead and Deck
NAVSEA Dwg 804-1385781, Rev E; Pipe Hangers for Surface Ships (Superseding NAVSEA Dwg. 810-1385781)
NAVSEA Dwg 810-1385880, Rev D; Fittings, Cu-Ni Alloy, Slip on Sleeve
NAVSEA S9074-AR-GIB-010/278, 8/1/1995; Requirements for Fabrication Welding & Inspection & Casting Inspection & Repair for Machinery, Piping & Pressure Vessels
NAVSEA T9074-AS-GIB-010/271, Change Notice 1; Requirements for Non-Destructive Testing Methods
The Society for Protective Coatings SSPC-SP 3, 11/1/2004; Power Tool Cleaning

3 REQUIREMENTS

The Contractor shall provide all labor and material to accomplish the following in accordance with the General Requirements:

NOTE: A verification shipcheck by Contractor prior to bidding is recommended to; validate the proposed piping modifications described in this section and shown in the reference drawings; determine any major possible interferences during the performance of this work item; verify arrangement of Oily Water Separator (OWS) unit and its piping systems; verify arrangement of fuel stripping discharge piping to Oily Water Bilge Tank (OWBT); verify pipe sizes and materials of affected piping systems with the proposed piping modifications indicated in Coast Guard Drawings 110B-WPB 529-3 and 110B-WPB 529-4. CG Drawings 110B-WPB 529-1, sheet 1 of 7, 110B-WPB 529-2 and 110B-WPB 85-8, sheet 1 of 10 are original builder's piping arrangement and schematics drawings, respectively developed for installation of original Sarex VGS-2 OWS unit for WPB "110B" class cutters. Coast Guard Drawing 110B-WPB 85-8, sheet 9 of 10 is an original builder's electrical drawing developed for installation of Sarex VGS-2 OWS (not furnished with an OCM unit) for WPB "110B" class cutters. Schematic piping removals associated with the replacement of builder's original installed OWS unit with a NEW Sarex Model VGS-2 furnished with Bilge Alarm Sarex BA-1 as required in Shipalt 110-C-075 is documented as "Revision G" in Coast Guard Drawing 110B-WPB 501-1, sheet 1 of 7. **However, shipboard investigation conducted on cutter Washington last 2001 found discrepancies between schematic piping modifications associated with the OWS unit replacement marked as "Revision G" in Coast Guard Drawing 110B-WPB 501-1, sheet 1 of 7 and the**

actual installation on cutter Washington. Some of these descripancies are shown in the enclosed Figure #1. CG Drawings 110B-WPB 529-3 and 110B-WPB 529-4 are the latest OWS piping diagram and arrangement drawings, respectively developed for modifications of OWS unit's (Sarex Model VGS-2 furnished with Bilge Alarm Sarex BA-1) associated piping and components as required in ECN 110-B-132. Because these aforementioned drawings are specifically developed for WPB 110' Class cutters, there may be discrepancies with what is called out as existing in the drawings and what is actually existing on the cutter. Shipboard validations of these drawings by Contractor prior to bidding and actual work will clarify discrepancies that may cause major problems during the performance of this work item. CG Tech Pub 4541, Section/Tab "A" is a technical publication for OWS Sarex Model VGS-2 with Bilge Alarm Sarex BA-1 made applicable to 110' WPB Class "A", "B" and "C" in accordance with SHIPALT 110-C-175. CG Tech Pub 4541, Section/Tab "B" is a technical publication for OWS Sarex Model VGS-2 with Bilge Alarm Oil Content Detector (OCD)-CM. Reference "Manual No. BAMNOCD CM, July 2004; IOM Manual OCD Bilge Alarm Model OCD CM" is an OEM's (Coffin World Water System) manual inserted in CG Tech Pub 4541, Section/Tab "B".

3.1 GENERAL

3.1.1 In the presence of the Coast Guard Inspector, inspect and test all equipment and systems that will be disturbed during the performance of this work to document their original condition. Submit a Condition Found Report for all such equipment and systems noting any existing (pre-work) discrepancies in their operation.

3.1.2 The concerned work area shall include, but is not limited to the Engine Room (3-22-0-E), OWBT (3-27-2-F), Dirty Oil Tank (DOT) (3-27-1-F), and Engine Room Bilge area.

3.2 TAG-OUT – Secure, isolate, and tag-out all affected mechanical, piping, and electrical systems in accordance with the General Requirements. Cutter personnel will assist in locating all items to be secured or isolated required for this work item.

3.2.1 All fluid that drains from the piping systems shall be cleaned up and removed immediately.

3.2.2 Remove and dispose of any remaining liquids in the tanks by pumping the tank dry. Affected OWBT and DOT will be emptied, cleaned and gas freed in Definite Item, "Tanks (Dirty Oil and Oily Water Bilge) Cleaning and Inspection. All affected spaces and associated piping and their components shall be certified as "Safe for Personnel–Safe for Hotwork" in accordance with the General Requirements.

3.2.3 Notify the Coast Guard Inspector prior to opening any accesses to the affected tanks.

3.3 **INTERFERENCE–**Remove or protect all interferences in accordance with the General Requirements. Known interference include but not limited to insulation, sheathing, deck plates, support framing, miscellaneous piping systems, access holes, cable runs, and associated engine room machinery. Temporary removal and reinstallation of any interferences required to complete this work item is the responsibility of the Contractor and in accordance with the General Requirements. All interferences that are removed shall be tagged to facilitate the proper reinstallation. Ensure that all equipment removed for reinstallation is kept in a clean, dry, protected location off the cutter at the Contractor's facility. Obtain verification from the Coast Guard Inspector for the protective measures taken for equipment not removed.

3.4 GAS FREE CERTIFICATION

3.4.1 Gas free and certify the affected compartments and tanks in accordance the General Requirements. The affected compartments must be certified "Safe for Personnel – Safe for Hotwork" for the duration of work performed under this item.

3.4.2 Maintain gas free certification until completion of all work under this definite item. Gas Free Certificates indicating the current status of each tank and affected spaces shall be posted on the quarterdeck, at each open access to the tanks and in the work area. Provide one copy to the Coast Guard Inspector.

3.5 HOTWORK – Conduct all hotwork in accordance with MLCPAC Std Spec 074 and as specified below. All welds shall be full-penetration, continuous, 100% efficient welds.

3.5.1 Brazed piping joints shall be fabricated and inspected per NAVSEA 0900-LP-001-7000, Class P-3b.

3.5.2 Fabrication, welding, and inspection of piping joints shall be in accordance with NAVSEA S9074-AR-GIB-010/278, Class P-2. Weld joint design for butt or socket welding in accordance with MIL-STD-22.

3.5.3 Fabrication, welding, and inspection of cutter structures shall be in accordance with MIL-STD-1689.

3.6 ELECTRICAL REMOVAL

3.6.1 Disconnect and remove cables in accordance with MLCPAC Std Spec 304.2.

3.6.2 Disconnect and remove the cable from bilge High & Low Level Switches in accordance with the Note 6 of the CG Dwg 110B-WPB-529-003.

3.6.3 Remove and discard the existing High & Low Level Switches as shown on the CG Dwg 110B-WPB-529-003.

3.7 ELECTRICAL WIRING INSTALLATION OWBT HIGH AND LOW LEVEL SWITCHES

3.7.1 All new cables shall be of unarmored construction with low smoke insulation conforming to MIL-DTL-24643.

3.7.2 Wiring installation methods and cable supports shall be in accordance with MLCPAC Standard Specification 304.2. Route the cables through existing wireways where possible.

3.7.3 The Contractor shall provide miscellaneous hardware (i.e. Nylon Stuffing Tubes, Box Connectors, Lugs Mounting Brackets, Bolts, Nuts, Studs) for installing the cable.

3.7.4 Install cable tags on all new and rerouted cables in accordance with MLCPAC Std Spec 304.2. Tags shall be located at equipment cable entrances and on each side of a deck or bulkhead penetration.

3.7.5 Terminate cable with ring type terminals. Spade type lugs shall not be used. No more than three wires shall terminate at any one stud or terminal.

3.7.6 The Contractor shall supply following material listed in the Table:

QUANTITY	PART NUMBER	SUGGESTED SOURCE OF SUPPLY
2	LS-7 (164870), item #12 in Coast Guard Drawing 110B-WPB 529-004	Gems Sensor Inc, One Cowles Road, Plainville CT 08062 (Telephone:860-747-3000)
100 FEET	LSTSGU-4 (**M24643/16-02UN 14-3C WATERTIGHT)**	Anixter Corp (**http://www.anixter.com)**

3.7.7 The Contractor shall install the High & Low Level Switches to Oily Water Bilge Tank in accordance with the manufacturer's instruction in CG Tech Pub 4541 and Coast Guard Drawings 110B-WPB 529-3 and 110B-WPB 529-4.

3.7.8 The Contractor shall install the cable (LSTSGU-4) from OWS Control Panel to High/ Low Level Switches mounted on the Oily Water Bilge Tank. Terminate the Cable as shown on wiring diagram in CG Tech Pub 4541 and Coast Guard Drawing 110B-WPB 320-8, sheet 12 of 13.

3.7.9 The Contractor shall test the cable in accordance with MLCPAC Std Specification 304.1.

3.8 ELECTRICAL WIRING INSTALLATION FOR REPLACING SAREX BILGE ALARM MODEL BA-1 OIL CONTENT MONITOR **WTH A GFP BILGE ALARM OCD CM**

3.8.1 Disconnect and remove electrical cables between bilge alarm monitor BA-1 control module, Sensing module and Water Discharge Solenoid Valves (OWS overboard solenoid valve and OWS recirculation solenoid valve). Disconnect and pulled back power cable to BA-1 control module for later re-connection to GFP Bilge Alarm OCD-CM (Table 3). Disconnect cables in accordance the MLCPAC Standard Specification 304.2. Record wiring information and submit Condition Found Report to the Coast Guard Inspector. See enclosed FIGURE #1 (sht 1 and 3 of 4).

3.8.1.1 The Contractor shall disconnect and pulled back power cable to Bilge Alarm Panel (BA-1) in accordance with the MLCPAC Std. 304.2.

3.8.1.2 The Contractor shall remove Bilge Alarm Panel (BA-1) from its mounting as shown in enclosed Figure #1 (sht 3 of 4)and turn over to Coast Guard Inspector for disposal.

3.8.1.3 The Contractor shall install GFP Bilge Alarm OCD CM in accordance with enclosed Figures #2 and #3 using stainless steel fasteners from the support bracket provided in paragraph 3.10. Template the mounting holes from the unit. The Contractor shall supply all mounting hardware to mount GFP Bilge Alarm OCD CM.

3.8.1.4 The Contractor shall re-connect previously removed cable to GFP Bilge Alarm OCD CM. If the existing cable is not long enough to reach new unit, the Contractor supply and install new cable (LSDSGU-4) in accordance with MIL-DTL-24643.

3.8.2 The Contractor shall also install GFP Bilge Alarm OCD CM's supplied 12 Feet cables from Bilge Alarm OCD CM to Bilge Alarm Valve Manifold as shown in enclosed Figure #3.

3.8.3 The Contractor shall install cables with nylon stuffing tubes in accordance with the ASTM F 1836M. Wiring installation methods and cable supports shall be in accordance with the Cutter's existing procedure.

3.8.4 Test all new and affected cables in accordance with MLCPAC Standard Specification 304.1 prior to operational test.

3.9 **MISCELLANEOUS PIPING AND COMPONENTS REMOVALS –** Using Coast Guard Drawings **110B-WPB 501-1, sheet 1 of 7, 110B-WPB 529-3, 110B-WPB 529-4,** and enclosed Figures as guidance, remove and discard miscellaneous piping systems associated with **OWS UNIT SAREX MODEL VGS-2 (TABLE 1), BILGE ALARM SAREX MODEL BA-1 OIL CONTENT MONITOR, and** OWBT as described below. All crosshatched, [///////] piping and components in Coast Guard Drawings 110B WPB 529-4, 110B WPB 501-1, Rev. G (sheet 1 of 7), and called-outs in Detail 4-C and General Notes of Coast Guard Drawing 110B-WPB 529-3 shall be removed. Any additional removals not specifically marked and/or identified in the drawings will be specified below. For descriptive purposes, piece numbers in parentheses (pc#) and drawing views in below paragraphs correspond to callouts in reference drawings cited in that paragraph. During specification writing of this work item there are material discrepancies found in reference drawings, due to this finding the Contractor is reminded to take notes of existing materials affected by removals of OWS unit and associated components especially the ones that are intended for reconnections/repiping. Mark all proposed removals for verification by the Coast Guard Inspector prior to the actual ripout. The existing OWS is located in the Engine Room (3-22-0-E), port side, aft frame 24. Cutter personnel will assist in locating affected OWS unit and components, and OWHT.

TABLE 1 (See CG Tech Pub 4541 and enclosed Figure #1)

Manufacturer	Coffin World Water Systems
Model	VGS-2 GPM Separator
Type	2-Stage Gravity-Coalescer Oil-Water Separator
Part Number	G22AP
Electrical Power Control Requirements	110 VAC, 60 Hz, Single Phase
Effluent (Primary)	Clean Water
Effluent (Secondary)	Waste Oil
Separating Capacity Maximum	2.2 GPM
Contamination Level of Water Effluent (Max)	15 PPM (parts per million)
Holding Capacity	8 Gallons
Operating Pressure (Max)	40 PSIG
Oily Water Inlet Conn (Influent)	1-inch Flange
Clean Water Discharge Connection (Effluent water)	1/2-inch FPT
Oil Water Connection (Effluent oil)	1/2-inch FPT
Dry Weight	135 Lbs
Operating Weight	205 Lbs

NOTE: This is a clarification note provided to the Contractor to assist them for proper identification of reference drawings applicability as cited in this work item. Coast Guard Drawings 110B-WPB 529-3 and 110B-WPB 529-4 are **NEW** drawings developed for modifications of existing piping associated with OWS unit (SAREX VGS-2 with a bilge alarm BA-1 monitor) installed in Coast Guard Drawing 110B WPB 501-1, "**REVISION G**" (sheet 1 of 7) labeled **item #3** and documented in CG Tech Pub 4541. The OWS unit, SAREX VGS-2 with Bilge Alarm BA-1 monitor was installed as replacement unit for a builder's originally installed OWS unit in Coast Guard Drawings 110B-WPB 501-1, sheet 1 of 7(prior to revision G), 110B-WPB 529-2 and 110B-WPB 85-8 (sheet 1 of 10). The original builder's OWS piping arrangement and details and schematic drawings, Coast Guard Drawings 110B-WPB 529-2 and 110B-WPB 85-8 (sheet 1 of 10) were never updated and/or revised to depict the OWS replacement with

a SAREX VGS-2 with Bilge Alarm BA-1 monitor similar to what was done in Coast Guard Drawing 110B-WPB 501-1, sheet 1 of 7 was revised to Rev. G. The only known drawing that shows removal (marked with cross hatching) of original OWS unit and its piping installed by original construction is Coast Guard Drawing 110B WPB 501-1, Rev. G (sheet 1 of 7).

NOTE: To avoid misleading call outs and clarify drawings views cited in Coast Guard Drawing 110B-WPB 529-4 replace the following call-outs: In "Plan View 4-B" replace call outs for "Plan 22-C" in three (3) places and "Plan 14-D" with "Plan 22-B"; In "Elevation View 7-A" replace call outs for "Elev 22-B" in two (2) places and "Elev 11-C" with "Elev 19-B".

3.9.1 **It is the Contractor's responsibility to template ALL associated piping and components for removals and modifications to update existing OWS unit Sarex Model VGS-2 piping systems on cutter Washington comply with the OWS (ie. influent supply from OWBT only, effluent water discharge to overboard or recirculate back to the OWBT, drain, and oil discharge to DOT) unit piping modifications in "Detail 7-A" of Coast Guard Drawing 110B-WPB 529-3. The only exception in "Detail 7-A" of Coast Guard Drawing 110B-WPB 529-3 is the "BA-1 Oil Content Monitor" will be replaced with a new GFP Oil Content Detector (OCD)-CM Bilge Alarm with ½" Valve Manifold piping assembly as shown in enclosed Figure #2**.

3.9.2 Remove and discard the OWS Sarex Model BA-1 oil content monitor as shown in enclosed Figure #1. The Sarex Model BA-1 oil content monitor shall be removed and replace with a new GFP Oil Content Detector (OCD)-CM Bilge Alarm with ½" Valve Manifold (**Table 2)**. **Do not remove the OWS unit.** Miscellaneous piping removals required to modify miscellaneous OWS piping are indicated in Coast Guard Drawings 110B WPB 529-3 and 110B-WPB 529-4. See CG Tech Pub 4541, Section/Tab B and enclosed Figure #2 for GFP Oil Content Detector (OCD)-CM Bilge Alarm with ½" Valve Manifold. Do not remove support bracket of Sarex Model BA-1 control module as shown in enclosed Figure #1 (sht 3 of 4) for possible reuse to mount the GFPBilge Alarm OCD CM.

3.9.2.1 Remove and discard flexible hoses attached to the Sarex BA-1 sensing module solenoid operated water discharge recirculation and overboard valves and continue removal to their respective connections on the OWS influent supply piping and effluent water discharge to overboard, respectively as noted in Figure #1, sheets 1 and 2 of 4. **Do not remove the overboard discharge isolation ball and swing check valves.** See "Detail 4-C "in Coast Guard Drawing 110B-WPB 529-3 for typical installation diagram.

3.9.3 Remove and discard sections of 1"copper-nickel alloy or steel OWS influent supply piping as indicated in enclosed Figure #1 (sht 2 of 4). Discard all valves and fittings associated with the removed OWS influent supply piping. Disconnect and retain the fresh water supply flexible hose from its connection to the OWS influent supply piping. This hose assembly will be modified to supply fresh water to the new GFP Oil Content Detector (OCD)-CM Bilge Alarm with ½" Valve Manifold and OWS new filling/priming funnel.

3.9.3.1 Remove section of 1" steel OWS influent water suction from OBWT. Piping removal includes the suction tailpipe inside the OBWT. See Plan View 4-B and Section 5-A of Coast Guard Drawing 110B-WPB 529-4 and Detail 4-C of 110B-WPB 529-3.

3.9.3.2 Remove the 1" swing check valve from its connection to the 1" copper-nickel alloy OWS influent supply piping. The swing check valve is located upstream of the flow indicator/sight glass. See Plan View 4-B and Elevation View 7-A of Coast Guard Drawing 110B-WPB 529-4 and Detail 4-C of 110B-WPB 529-3 for location.

3.9.3.3 Remove and discard the 1" copper-nickel alloy OWS bilge suction in Engine Room as shown in Plan View 4-B and Section 5-B of Coast Guard Drawing 110B-WPB 529-4 and Detail 4-C of 110B-WPB 529-3. Provide and install a new 1" bronze cap (pc#11) in Plan View 22-B of Coast Guard Drawing 110B-WPB 529-4 after removal.

3.9.3.4 Inspect the 1" steel/copper-nickel alloy OWS influent supply piping from the OWBT connection to the bubbled OWS piping in enclosed Figure #1 (sht 2 of 4). Submit inspection findings of components (ie. 1" OWBT suction isolation ball valve, 1" simplex strainer, and sight glass) that are not installed (missing) on the influent supply piping and required to reflect the modified OWS piping in Detail 7-A of Coast Guard Drawing 110B-WPB

529-3. Use Detail 4-C of Coast Guard Drawings 110B-WPB 529-3 and 110B WPB 501-1, sheet 1 of 7 (components labeled with Rev. G) to identify missing components. Installation of these missing components will be subject of a contract change.

3.9.4 The OWS 1st and 2nd stage ½" drains are not piped as indicated in Detail 4-C of Coast Guard Drawing 110B-WPB 529-3. The drains are directed to the bilge as shown in enclosed Figure #1 (sht 4 of 4). These drains will be combined into a common drain and connect it to the new OWS ½" effluent water recirculation to the OWBT piped to installed using Coast Guard Drawing Elevation View 7-A of Coast Guard Drawing 110B-WPB 529-4 and enclosed Figure #4 (sht 2 of 2).

3.9.5 The OWS 1" priming/fill funnel is not piped as shown in Detail 4-C of Coast Guard Drawing 110B-WPB 529-3 and Elevation View 7-A of Coast Guard Drawing 110B-WPB 529-4. Install a new funnel on the OWS influent supply piping similar to enclosed Figure #4 (sht 1 of 2), Detail 7-A of Coast Guard Drawing 110B-WPB 529-3 and Coast Guard Drawing Elevation View 7-A of Coast Guard Drawing 110B-WPB 529-4.

3.9.6 Remove section of 1" steel Fuel Tank stripping discharge from the fuel oil hand pump to OBWT. Piping removal includes piping inside OBWT. See Plan View 4-B and Section 5-A of Coast Guard Drawing 110B-WPB 529-4, and Detail 4-C of 110B-WPB 529-3 for location of affected piping. The existing 1" Fuel Tank stripping discharge from the fuel oil hand pump will be routed to discharge to DOT as indicated in Detail 7-A of Coast Guard Drawing 110B-WPB 529-3.

3.9.7 Ensure that hotwork does not warp, distort, or cause any other damage to the structural members of cutter. Grind all welds smooth to facilitate removal of structural fittings associated with items removed.

3.9.8 All removed items shall be discarded except for items identified for retention by the Coast Guard Inspector.

3.9.9 Deteriorated pipe hangers and supports/brackets located along the permanently removed piping shall be removed, otherwise retain them for reinstallation. Identify and submit a CFR for those pipe hangers and supports requiring renewal.

3.9.10 Grind all welds smooth to facilitate removal of piping from their welded joints and tank penetration welds. Ensure hotwork does not warp, distort, or cause any damage to the adjacent plating.

3.9.11 Remove and discard deteriorated valve label plate.

3.9.12 All holes left in structures/tanks due to permanently removed component shall be plugged or blanked with the same material as the adjacent plate/structure.

3.9.13 Install temporary cap or plug on open piping upon removal to protect systems from contamination.

3.10 **GFP BILGE ALARM OCD CM UNIT INSTALLATION AND MISCELLANEOUS PIPING MODIFICATIONS AND INSTALLATIONS ASSOCIATED WITH EXISTING OWS UNIT, OILY WATER BILGE TANK AND DIRTY OIL TANK –** The Contractor shall perform the following to accomplish installation of a GFP bilge alarm OCD CM with ½" valve manifold (enclosed Figure #2) in way of the removed OWS bilge alarm BA-1 monitor paragraph 3.9.2; modify existing OWS influent supply, effluent water discharge and drains; installation of a new OWBT's pump out connection; and relocate fuel oil stripping to DOT. Provide all necessary materials except the GFP bilge alarm OCD CM with ½" valve manifold to complete installations and/or modifications of structural, mechanical and electrical components as described below. Allow the Coast Guard Inspector to verify all proposed structural, electrical, and mechanical installations and modifications including locations of relocated components. Template all works including piping routes to existing condition aboard the cutter. Use adapter/bushing/nipple/flange to facilitate installation of piping from existing OWS unit and GFP bilge alarm OCD CM units. Provide take down joints (such as flanges or unions) for removal of equipment and piping components during maintenance. Install all valves so they are easily accessible to operate and maintain by cutter's personnel. Installation of new piping shall permit free passage in walking areas and shall not interfere with the operation or control of any equipment. See Coast Guard Dwgs 110B-WPB 529-3, 110B-WPB 529-4, and 110B-

WPB 501-1, sheet 1 of 7, "marked REVISION G" for material specification of associated piping and components. For descriptive purposes, piece numbers in parentheses (pc#) and drawing views in below paragraphs correspond to callouts in reference drawings cited in that paragraph.

NOTE: It is very important to note that there are known discrepancies between material specifications (steel and copper-nickel alloy) in Coast Guard Drawings 110B-WPB 529-4 and 110B-WPB 501-1, sheet 1 of 7, marked as REV.G. For reinstallation and repiping of any affected piping systems, use the same material as existing piping, unless, the entire length of piping is removed from its source (ie. OWBT, OWBT, DOT, etc.) to the OWS unit that piping will be replaced with a different material as specified below. Any material deviations on Coast Guard Drawing 110B-WPB 529-4 will be identified using the same piece number called in the drawing. Avoid connecting ferrous and non-ferrous piping materials on the OWS oily water suction/supply (influent) piping with out a waster spool piece.

3.10.1 When and where existing support bracket of removed OWS Sarex Model BA-1 oil content monitor above is not adequate or the length of sampling tubing will exceed the maximum requirement as specified in enclosed Figure #2, fabricate a new bracket as follows. Fabricate and install new bilge alarm OCD CM and valve manifold support brackets using mild steel materials of same thickness as the old Sarex Model BA-1 OCM support bracket. Locate support brackets as close as possible between the new bilge alarm OCD CM and valve manifold's sample outlet connection to allow installation of ¼" OD copper tubing sample line NOT TO EXCEED fifteen (15) linear feet as specified in enclosed Figure #2. The new bracket shall be supported against the cutter's structure preferably on the shell close to the OWS unit. Template fabrication of support brackets and drilling of mounting holes from GFP new bilge alarm OCD CM and valve manifold, see enclosed Figure #2.

3.10.2 Install GFP Bilge Alarm OCD CM and valve manifold in accordance with CG Tech Pub 4541, Section/Tab B, OEM's instructions manual BAMNOCD CM and enclosed Figure #2.

NOTE: To reiterate important note stated in paragraph 3.9.1, the Contractor shall be responsible for accomplishing all necessary piping modifications and installations so that the MODIFIED/COMPLETED piping systems associated with OWS unit, OWBT, and DOT is similar to DETAIL 7-A of Coast Guard Drawings 110B-WPB 529-3 except the bilge alarm BA-1 content monitor (BA-1 control module and BA-1 sensing module) will be replaced with a GFP bilge alarm OCD CM unit (enclosed Figure #2). Piping modifications and installations include the repiping of 1" steel Fuel Tank stripping discharge from fuel oil hand pump to discharge to DOT; installation of a new ¾" FLOCS suction connection for OBWT; and installation of new OWBT level switches.

3.10.3 OWS oily water supply/suction (influent), 1" 150# Flange Connection– Install, repipe and/or reconnect a 1" IPS copper-nickel alloy 90-10 or steel OWS suction (influent) line from the OWBT's new suction tailpiece to the oily water 1 inlet connection (1st stage vessel) in accordance with 110B WPB 501-1, Rev. G (sheet 1 of 7); Plan 22-B, Elevation 19-B, Section 12-B, Section 14-B, and Elevation 12-C of Coast Guard Drawing 110B-WPB 529-4; and Detail 7-A of Coast Guard Drawing Coast Guard Drawing 110B-WPB 529-3. The OWS oily water suction piping (influent supply) will have the following components as minimum, a new 1½" foot valve (pc#9); a new 1" OWS tank isolation ball or gate valve; a new 1" gate valve (pc#14) for drain and backflush connection (adjacent to OWBT); simplex strainer; flow indicator/sight glass; and a 1" prime and fill connection (adjacent to the OWS unit). See enclosed Figure #4 (sheet 1 of 2) for similar installation of OWS influent piping fitted with prime and fill funnel, isolation valve, fresh water supply tubing and sight glass.

3.10.3.1 Install a new 1" copper-nickel alloy priming/fill line with bronze isolation full port ball valve and a funnel. Locate funnel above vent valve opening located on top of the 1st stage vessel. Ensure an air gap of 2.5 times the pipe diameter exists between the priming line and the overflow rim of the funnel. Sharp bends/turns shall be avoided from the influent piping run. Fabricate funnel from a copper sheet 0.065 thk. See enclosed Figure #4 (sht 1 of 2) for similar installation.

3.10.3.2 Install a new 1" OWS influent supply piping flushing and drain connection assembly fitted with a bronze gate valve, pc# 14 in Coast Guard Drawing 110B-WPB 529-4. The flushing connection shall be located close to the

OWBT as indicated in Plan View 22-B, Elevation View 19-B, and Section 12-B of Coast Guard Drawing 110B-WPB 529-4 and Coast Guard Drawing 110B-WPB 529-3, Detail 7-A and General Note #4.

3.10.4 OWS clean water discharge (effluent water discharge), ½" FPT connection – Install a new ½" copper-nickel alloy alloy piping from the OWS effluent water discharge connection (new 1/2" monel nipple toe or MPT x FPT bronze adapter) and route and connect it to the ½" FPT bilge alarm valve manifold inlet connection with a (new 1/2" monel nipple toe or MPT x FPT bronze adapter). See enclosed Figure #2 for location of bilge alarm valve manifold inlet, and CG Tech Pub 4541 for OWS effluent water discharge location.

3.10.4.1 Install and connect a new ½" copper-nickel alloy from the ½" FPT bilge alarm valve manifold outlet connection (overboard) with a (new 1/2" monel nipple toe or MPT x FPT bronze adapter) and connect the end of this piping from the end of piping removal in paragraph 3.9.2.1. See enclosed Figure #1 (sht 1 of 4) for location of effluent water discharge to overboard connection.

3.10.4.2 Install and connect new ½" copper-nickel alloy from the ½" FPT bilge alarm valve manifold outlet connection (recirculation) with a (new 1/2" monel nipple toe or MPT x FPT bronze adapter) and route to terminate in the OWBT. Per Coast Guard Drawing 110B-WPB 529-4, Plan View 22-B, the new effluent recirc piping is a 1" steel, pc.17.

3.10.4.3 Install new GFP ¼" OD copper tubing from the bilge alarm valve manifold sample inlet connection and connect it to the bilge alarm OCD-CM sample inlet connection. The maximum length of ¼" OD copper tubing between valve manifold sample inlet connection and OCD-CM sample inlet connection is fifteen feet (15 FT maximum). Install new ¼" OD copper tubing from the OCD-CM sample outlet connection and terminate below the grating above the bilge. See enclosed Figure #2 for schematic installation of aforementioned ¼" OD copper tubing.

3.10.4.4 Modify and install a new bronze adapter to accept installation of a new ¼" OD copper tubing from the end of fresh water supply flexible hose that was previously removed and retained in paragraph 3.9.3. Install and cut in a new bronze tee from the new ¼" OD copper tubing. Install a new ¼" OD copper tubing from the newly installed tee open connections. Route one new ¼" OD copper tubing to terminate above the OWS newly installed copper funnel in paragraph 3.10.3.1. See OEM's instructions manual BAMNOCD CM and enclosed Figure #2 for OEM's recommended sampling and fresh water supply to bilge alarm OCD-CM and bilge alarm valve manilfod.

3.10.4.4.1 Route the other new fresh water supply ¼" OD copper tubing from tee outlet and connect it to the bilge alarm OCD-CM sampling line in paragraph 3.10.4.3 using a new ¼" OD bronze tee. Install a new isolation bronze globe valve on this newly installed ¼" OD tubing upstream of the bilge alarm OCD-CM and bilge alarm valve manifold sample inlet connection.

NOTE: A 50 feet of ¼" OD copper tubing is provided with the GFP OCD-CM Bilge Alarm.

3.10.4.5 Install new 1/2-inch copper-nickel alloy drain line from the OWS 1st stage and 2nd stage drain valves as noted in enclosed Figure #1 (4 of 4). Combined these two lines and teed into the new ½" copper-nickel alloy bilge alarm valve manifold outlet connection (recirculation) piping to OWBT. See Coast Guard Drawing 110B-WPB 529-3, Detail 7-A and paragraph 3.10.4.2.

3.10.4.6 Repipe the end of removal on the 1" steel Fuel Tank stripping discharge from the fuel oil hand pump to discharge to the WOT in accordance with Detail 7-A of Coast Guard Drawing 110B-WPB 529-3 and Plan 22-B and Section 12-B of Coast Guard Drawing 110B-WPB 529-4.

3.10.4.7 Install a new ¾" steel FLOCS suction connection from the OWBT fitted with a male quick disconnect fitting and dust cap on top of tank in accordance with Detail 7-A and General Note #3 of Coast Guard Drawing 110B-WPB 529-3 and Plan 22-B, Elevation 19-B & 12-C, and Section 14-B of Coast Guard Drawing 110B-WPB 529-4.

3.10.5 All new OWBT and WOT penetrations shall be provided with a watertight steel plain sleeve.

3.10.6 When and where necessary, install and orient check valve(s) in forward and aft direction and to permit closure of disk by gravity and during backflow.

3.10.7 All piping and fittings shall be in accordance with material specifications cited in each applicable reference drawings and shall be compatible with the system fluid or existing piping. However, if the reference drawings are silent on material specification requirements the following are recommended materials for marine applications:

3.10.7.1 Piping materials for OWS suction (influent), OWS drains, OWS recirculation, and clean water discharge to overboard shall be nominal IPS copper-nickel alloy 90-10 or 70-30 in accordance with MIL-T-16420, seamless, Class 200, Grade 1. Steel piping shall be galvanized steel, schedule 40 per ASTM A-106, Grade B.

3.10.7.2 Bronze silver-braze fittings shall be in accordance with MIL-F-1183, Type A with brazing rings. Butt weld fittings shall be copper-nickel alloy 90-10 or 70-30 fittings in accordance with NAVSEA Dwg 810-1385880 or ASME 16.11 or 16.9. Long radius 90° or 45° elbows shall be used instead of short turn elbows where practicable especially on OWS influent supply piping. Known complying products for Cu-Ni alloy welded fittings are Alaskan Copper and Brass Co., CUNICO, and Lee Brass (formerly Flagg-Flow Fittings).

3.10.7.2.1 An alternative to aforementioned silver-brazed bronze end and welded copper-nickel alloy end fittings are copper-nickel alloy mechanically attached fittings (MAFs) in accordance with ASTM F-1387. Type VI or Seapress fittings. Known complying products for copper-nickel alloy MAF fittings per ASTM F-1387. Type VI is Lokring Technology, and Viega for Seapress (these fittings require adapting pipe NPS in inches to mm).

NOTE: The choice between these alternatives is solely the Contractor's responsibility and should be based on his evaluation of the costs involved for material and labor costs. It shall be noted if MAFs are used for installation, the Contractor is not required to accomplish hydrostatic testing as specified in paragraph 3.8.3.

3.10.7.3 Steel fittings shall be steel socket weld type per ASTM A-105 or ASTM A-181, Class 70. Socket weld fittings shall be per dimensional requirements of ASME B16.11.

3.10.7.4 All new watertertight bhd/tank penetration sleeves, (pc#7 & #8) of Coast Guard Drawing 110B-WPB 529-4 shall be a plain steel sleeve in accordance with NAVSEA Dwg 803-1385866.

3.10.7.5 Valves shall have a cast bronze body with monel trim including stem, disk and seat insert. End connections for valves shall be union end.

3.10.7.6 Gasket material for flanges shall be synthetic rubber sheet per MIL-PRF-1149 or MIL-R-21252, or synthetic cloth inserted rubber per HH-P-151, or equal. An alternate gasket material for flanges shall be man-made non-asbestos Compressed Fiber gaskets. Gasket materials include but are not limited to Garlock 3400, Chesterton 195, Accord 533N, and John Crane 2160.

3.10.7.6.1 When and where a steel flange and a bronze or copper-nickel alloy flange are mating together on the OWS influent supply piping, install a full face insulating flange gasket kits, "dieletric gasket" (include glass reinforced epoxy gaskets with nitrile seals, glass reinforced bolt washers and mylar bolt sleeves). Known complying product is Pikotek PGE Type E gasket kits

3.10.7.7 Bolting flange fasteners shall be Monel per QQ-N-281, Class A, Grade 400.

3.10.8 Any substitute fitting(s) shall be for marine use and compatible with the system, i.e., oily/waste water.

3.10.9 When and where necessary, provide waster spool piece(s) between two dissimilar piping (Cu-Ni alloy and steel) to avoid galvanic corrosion per NSTM Chapter 505, paragraph 505-3.2. Fabricate spool pieces from a extra heavy galvanized steel pipe (minimum length 12") with mating flanges to facilitate renewal.

3.10.10 All new pipe hangers and supports shall be in accordance with General Note #3 of Coast Guard Drawing 110B WPB 529-4 and/or in accordance with NAVSEA Dwg 804-1385781.

3.10.11 Pipe bends shall be in accordance with MIL-STD-1627. Minimum pipe bend radius shall be five (5) times nominal pipe diameter.

3.10.12 All pipe threaded connections (tapered or straight pipe threads) shall be sealed during assembly using polytetrafluorethylene (PTFE) tape.

3.10.13 The Contractor and Coast Guard Inspector shall visually inspect the new installations and modifications.

3.11 WELDING EXAMINATIONS – The Contractor shall perform the following weld examinations:

3.11.1 In the presence of the Coast Guard Inspector, visually inspect and perform magnetic particle or dye penetrant weld inspection on all tanks watertight penetration sleeve welds including brazed or welded piping joints (option for hydro test) in accordance with NAVSEA T9074-AS-GIB-010/271 and MIL-STD-1689. The Coast Guard Inspector and the Contractor shall determine whether a magnetic particle or dye penetrant test shall be used. Test acceptance standards criteria in accordance with MIL-STD-2035. Repair all weld/braze deficiencies and retest.

3.11.1.1 Provide a written report of nondestructive test findings to the Coast Guard Inspector.

3.12 Cleaning and flushing of newly installed and affected piping system shall be in accordance with NSTM Chapter 505. All newly installed and affected piping shall be reasonably free of contamination and any remaining residue on the surface does not interfere with system operations or damage system components. Dispose of flushing fluid in accordance with all applicable federal, state and local laws and regulations. Do not drain any fluids into any space, bilge or exterior location.

3.13 Hydrostatic Testing – In the presence of the Coast Guard Inspector hydrostatically test the newly installed and modified OWS piping systems with clean fresh water to 50 psig for OWS influent water supply and effluent water discharge; and 35 psig for fuel stripping in accordance with NSTM Chapter 505, paragraph 505-11.1. Hold test pressure for a minimum of 30 minutes prior to inspection of the first joint. Inspect for leaks and weeps. No external leakage or permanent deformation is allowed. Repair and retest all leaks. Isolate the OWS and unit, OWBT, and DOT from the hydrostatic test pressure. An alternative to hydrostatic testing is to conduct NDT inspection of all new brazed or welded piping joints per paragraph 3.11.

3.13.1 The OWS 1st and 2nd stages gravity drain piping system shall be hydrostatically tested by filling the piping system with clean fresh water with outlet closed. Hold and maintain the water for a period of 30 minutes prior to inspection of the first joint. Inspect for leaks and weeps. No external leakage is allowed. Repair for leaks and retest.

3.13.2 Verify unobstructed air flow test prior to final tank closure with pressure source not greater than 100 psig to ensure free flow capability of the newly installed OWBT pump out connection.

3.13.3 In the presence of the Coast Guard Inspector, perform a liquid film bubble emission leak test along the entire length of the new weld seams of all watertight and oil tight structural penetrations (tanks).

3.14 Operational Testing – In the presence of the Coast Guard Inspector perform an operational test of the modified OWS and newly installed Bilge Alarm OCD CM units and associated piping systems and controls to verify proper operation and tightness at normal operating condition in accordance CG Tech Pub 4541, Tabs/Sections “A” and “B” and OEM’s instructions manual BAMNOCD CM. Operate the OWS and Bilge Alarm OCD CM to verify proper operation of all manual and automatic controls, alarms, indicator lights, tank level switches, and all associated components per applicable instruction manuals.

3.14.1 Perform functional tests of Bilge Alarm OCD CM and verify set alarm point and delays in accordance with CG Tech Pub 4541, , Tabs/Sections “A” and “B” and OEM”s instructions manual BAMNOCD CM.

3.14.2 Perform an operational test of the fuel tank stripping piping to verify proper operation, tightness and unobstructed flow.

3.15 COMPARTMENT RESTORATION – Upon completion of successful non-destructive testing, prepare all new and disturbed surfaces in accordance with SSPC-SP 3.

3.15.1 Feather the surrounding surfaces to obtain a 3-inch wide, smoothly tapered boundary from the existing paint to the prepared surface.

3.15.2 Prepared areas are to be inspected and verified by the Coast Guard Inspector prior to application of any coating.

3.16 SURFACE COATING – Coat all prepared surfaces to match surrounding surfaces in accordance with the applicable tables of COMDTINST M10360.3. The Contractor shall ensure that all prepared surfaces are dry and free of dirt, dust, grease, grit, or other contaminants.

3.16.1 Upon verification from the Coast Guard Inspector on all surface preparation, prime and coat the disturbed and prepared surfaces in accordance with COMDTINST M10360.3. For surfaces to be covered with insulation, apply primer coats only.

3.16.2 Coat all new and disturbed piping systems in accordance with COMDTINST M10360.3.

3.17 INSULATION AND LAGGING–All insulation and lagging disturbed in conjunction with this item shall be renewed in accordance with NSTM Chapter 635. Install all required installation and lagging for the newly installed piping in accordance with NSTM Chapter 635.

3.17.1 Coat all new insulation in accordance with COMDTINST 10360.3 to match surrounding insulation.

3.18 LABEL PLATE–Fabricate a label plate for the newly installed valves per NSTM Chapter 505 paragraph 505-7.8.3.2. Each plate shall identify the functional service of the component being attached to. Plates shall comply with MIL-DTL-15024 with stainless steel materials. The Coast Guard Inspector will provide each label plate inscriptions.

3.19 DRAWINGS

3.19.1 Upon completion, submit two marked-up (with erasable red pencil) blueline prints of affected Coast Guard Drawings to reflect the installation and modification of the piping systems in accordance with MLCPAC Std Spec 085.1. Submit completed marked-up reference drawings to the Coast Guard Inspector.

3.20 RESTORATION

3.20.1 In the presence of the Coast Guard Inspector, clear all tags in accordance with the General Requirements.

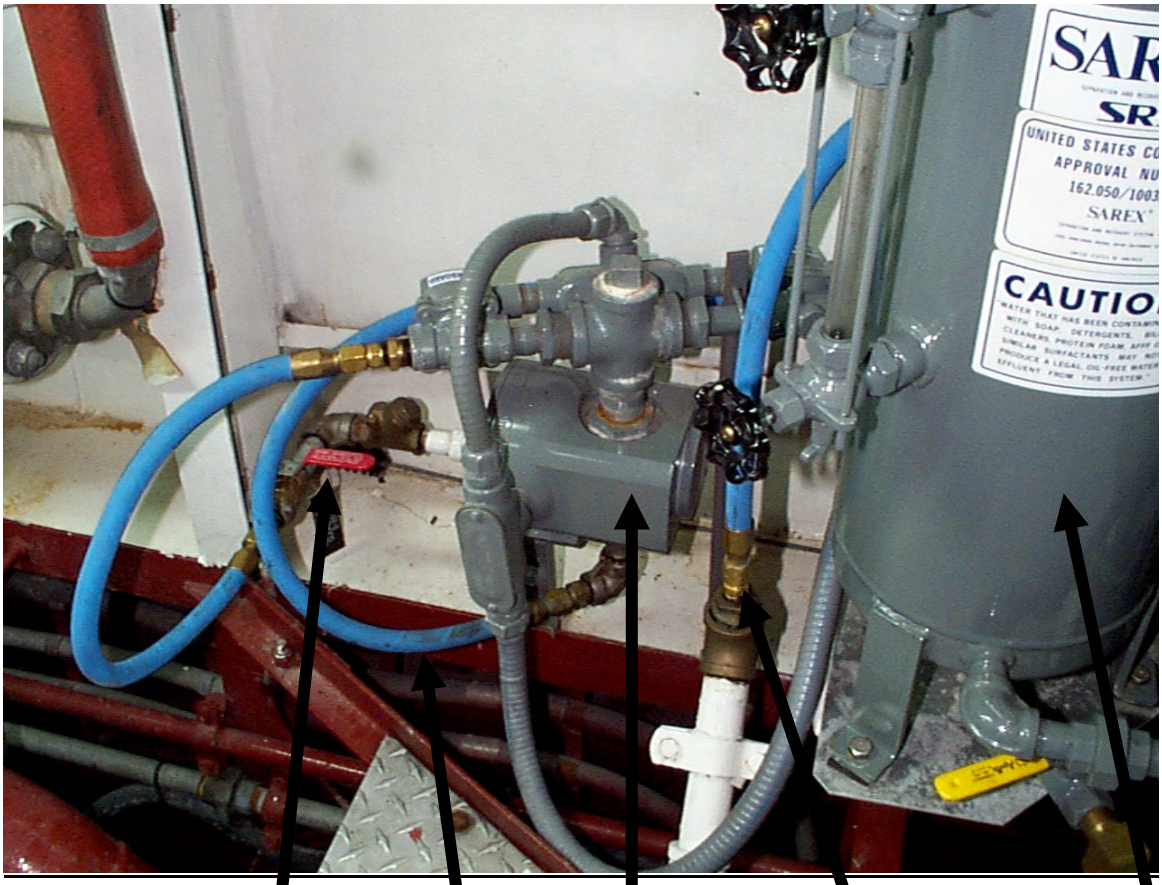
3.20.2 Restore all affected equipment and system to normal operating condition.

3.20.3 Restore all interferences.

3.20.4 Restore affected work areas to a clean condition

3.20.5 Coordinate all inspections with the designated Coast Guard Inspector to minimize production delays**.**

3.21 ENCLOSED FIGURES.



Disconnect and discard hose assy (OWS effluent water disch to ovbd) from the ovbd disch isol ball valve. Retain ovbd discharge hull assy including ovbd isol ball and check valves.

Rmv and discard Sarex BA-1 Sensing Module (Water discharge manifold Assy).

OWS oil discharge to Dirty Oil Tank. Retain hose assy and oil disch piping.

VGS-2 GPM Separator with a **Sarex Bilge Alarm Model BA-1 Oil Content Monitor. Rmv and discard the Sarex Bilge Alarm Model BA-1 Oil Content monitor and replace with a new GFP OCD-CM Bilge Alarm with ½" Valve Manifold (enclosed Figures #2 & #3) and CG Tec Pub 4541, Section/Tab "B".**

Disconnect and discard hose assy (OWS effluent water recirc) from its connection to the OWS influent supply piping in FIGURE #1 (sht 2 of 4).

FIGURE #1 (sht 1 of 4)

EXST OWS MODEL SAREX VGS-2 INSTALLATION ON USCGC WASHINGTON (WPB-1331)

NOTE: This photo taken on board the cutter Washington during shipboard investigation last 2001. Remove and discard the Sarex Bilge Alarm Model BA-1 (control and sensing modules) Assembly. See CG Tech Pub 1441, Figures 3-3 and 3-4 for associated components.

Remove and discard influent water sply piping from its connection to the OWS unit.

Remove and discard sections of OWS influent supply piping (within bubbled area) for modification to repipe/modify the influent supply piping in accordance with Coast Guard Drawing 110B-WPB 529-3, Detail 7-A. Discard all valves and fittings with the removed piping. See FIGURE 4 (sht 1 of 2) for installation guidance.

Disconnect and discard hose from the OWS influent supply piping and continue rmvl from the solenoid operated recirc valve in FIGURE 1 (sht 1 of 4).

Disconnect and retain clean fresh water supply hose for modification to sply fresh water to OWS new fill/priming funnel and new Bilge Alarm, OCD CM. See Dwg 120 in CG Tech Pub 4541, Section/Tab "B" for fresh water sply flushing connection. See FIGURE 4 (sht 1 of 2) for installation guidance.

FIGURE #1 (sht 2 of 4)

EXST OWS MODEL SAREX VGS-2 INSTALLATION ON USCGC WASHINGTON (WPB-1331)

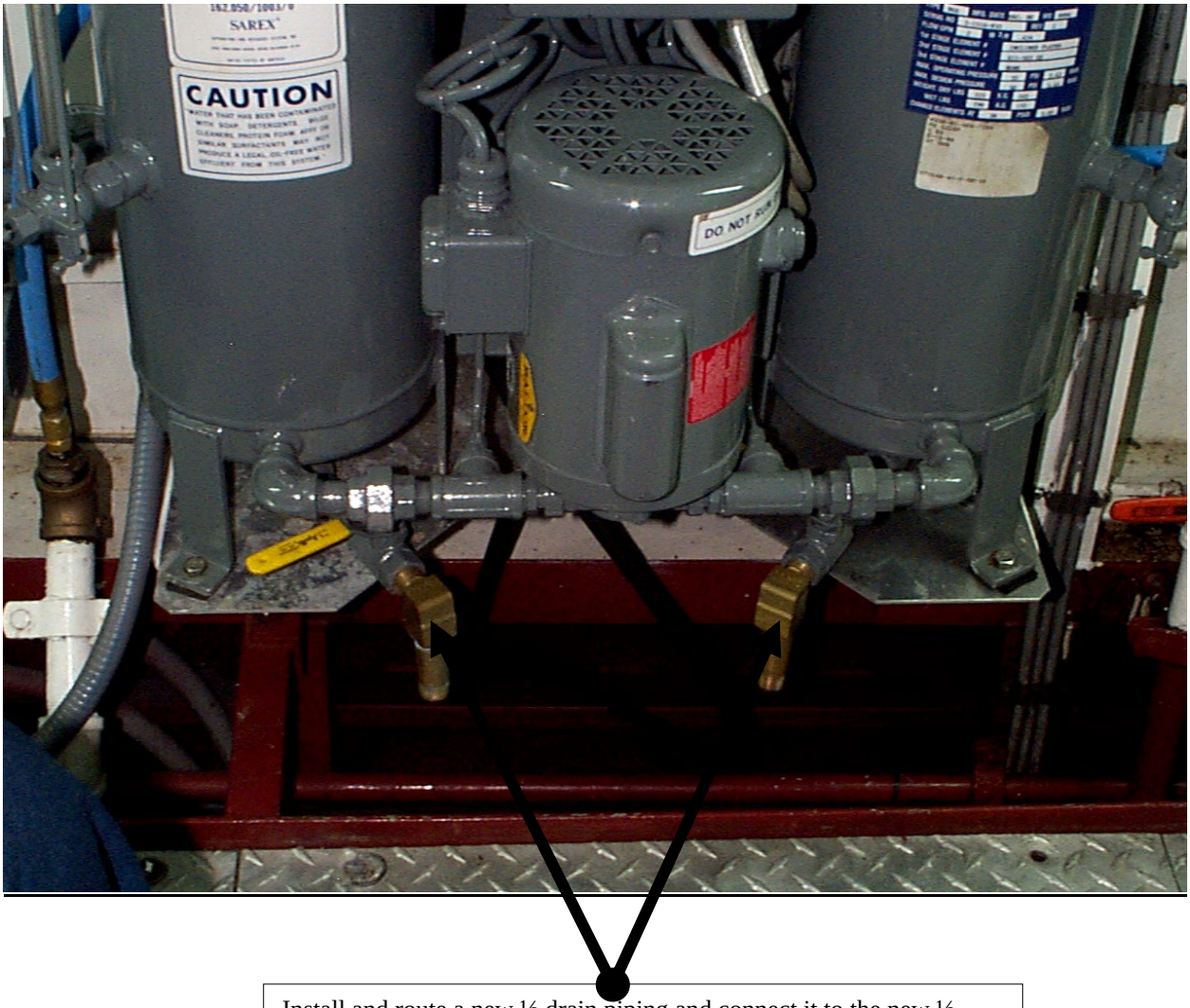
NOTE: This photo taken on board the cutter Washington during shipboard investigation last 2001. Figure shows affected OWS influent water sply, clean fresh water supply, and OWS effluent water recirc. See FIGURE 4 for existing installation on board cutter Tybee (WPB-1330), WLB Class B cutter.

Rmv and discard Sarex BA-1 Control Module and Sarex BA-1 Sensing Module, FIGURE #1 (sht 1 of 4). Disconnect and remove associated electrical cables.

FIGURE #1 (sht 3 of 4)

EXST OWS MODEL SAREX VGS-2 INSTALLATION ON USCGC WASHINGTON (WPB-1331)

NOTE: This photo taken on board the cutter Washington during shipboard investigation last 2001. Remove and discard Sarex Bilge Alarm Model BA-1 (control and sensing modules) Assembly. See CG Tech Pub 1441, Figures 3-3 and 3-4 for associated components. A **new GFP OCD-CM Bilge Alarm with ½" Valve Manifold (enclosed Figures #2 & #3) and CG Tec Pub 4541, Section/Tab "B" will replace the Sarex Bilge Alarm Model BA-1**.



Install and route a new ½ drain piping and connect it to the new ½ OWS drain piping that will recirculate in the Oily Water Bilge Tank as shown in Coast Guard Drawing 110B-WPB 529-3, Detail 7-A. See FIGURE 4 (sht 1 of 2) for installation guidance.

FIGURE #1 (sht 4 of 4)

EXST OWS MODEL SAREX VGS-2 INSTALLATION ON USCGC WASHINGTON (WPB-1331)

NOTE: This photo taken on board the cutter Washington during shipboard investigation last 2001. Figure shows the OWS drains are not piped properly.

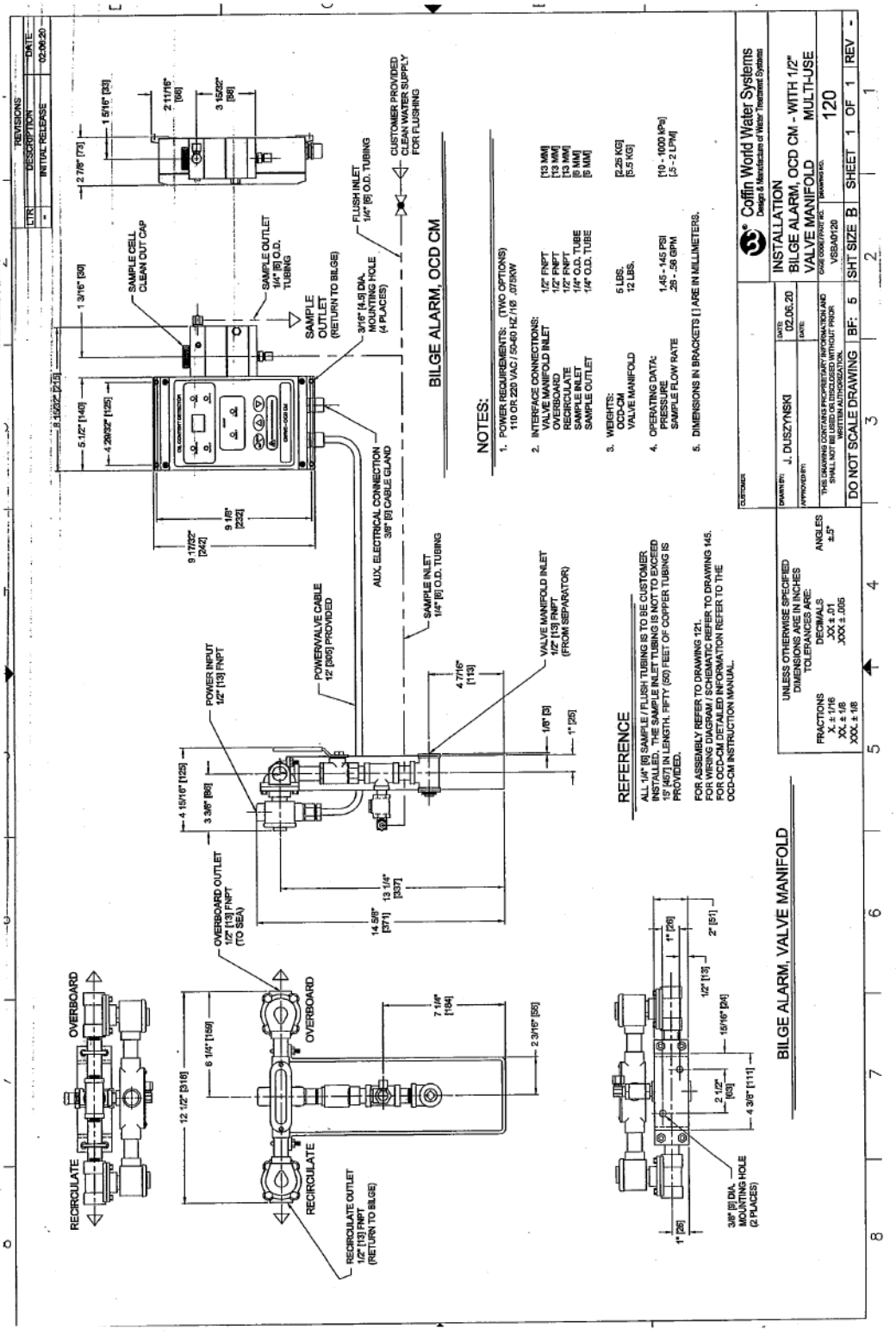


FIGURE-2

GFP OCD-CM BILGE ALARM WITH ½" VALVE MANIFOLD INSTALLATION

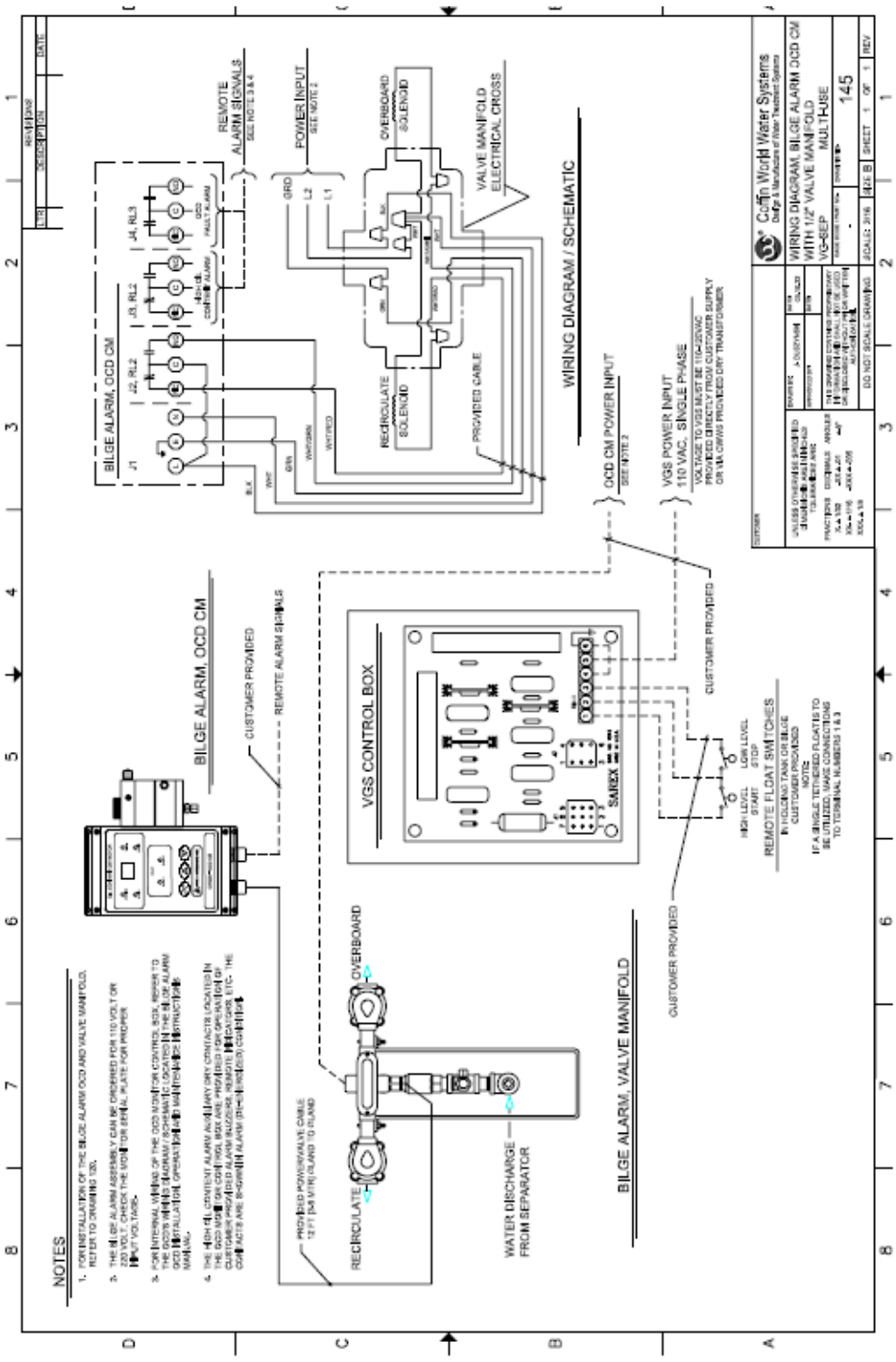
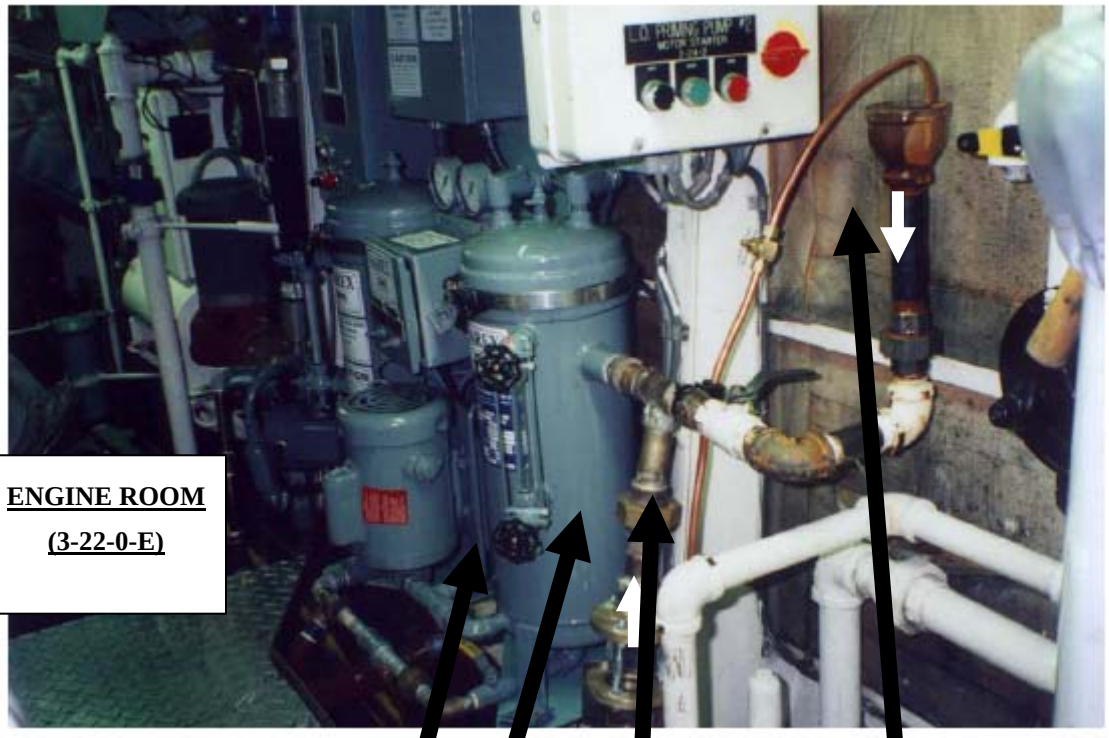


FIGURE-3

WIRING DIAGRAM, OCD-CM BILGE ALARM WITH ½" VALVE MANIFOLD INSTALLATION



ENGINE ROOM
(3-22-0-E)

VGS-2 GPM Separator with a **Sarex Bilge Alarm Model BA-1 oil content monitor.**

OWS priming and fill line assembly fitted with funnel and isolation ball valve. Locate the new funnel above the vent valve opening on top of the OWS 1st stage vessel. Use 1" copper-nickel alloy 90-10 piping assy with bronze valve and fittings.

1" copper-nickel alloy 90-10 OWS oily water supply/suction (influent supply) from OWBT only (not from bilge). This line is fitted with a sight glass and simplex strainer. The simplex strainer is located upstream of the sight glass.

3/8" OD copper tubing fresh water supply to OWS priming/fill funnel. NOTE: For cutter Washington the fresh water supply will be coming from the existing hose in FIGURE 1 (sht 2 of 4)

FIGURE #4 (sht 1 of 2)

EXST OWS MODEL SAREX VGS-2 INSTALLATION ON USCGC TYBEE (WPB-1327

NOTE: This photo shows existing OWS installation on USCGC TYBEE. This installation was documented as "REV. G" in Coast Guard Drawing 110B-WPB 501-1, sheet 1 of 7.

½" stainless steel OWS effluent water discharge overboard connection. A new ovbd isolation valve and swing check valve are provided between the ovbd connection and OCD CM valve manifold ovbd outlet connection.

½" copper-nickel alloy 90-10 OWS 1st stage and 2nd stage combined drain piped to the OWS effluent water discharge via the **Sarex Bilge Alarm Model BA-1 Sensing Module's solenoid operated recirc valve.**

FIGURE #4 (sht 2 of 2)

EXST OWS MODEL SAREX VGS-2 INSTALLATION ON USCGC TYBEE (WPB-1327

NOTE: This photo shows existing OWS installation on USCGC TYBEE. This installation was documented as "REV. G" in Coast Guard Drawing 110B-WPB 501-1, sheet 1 of 7.

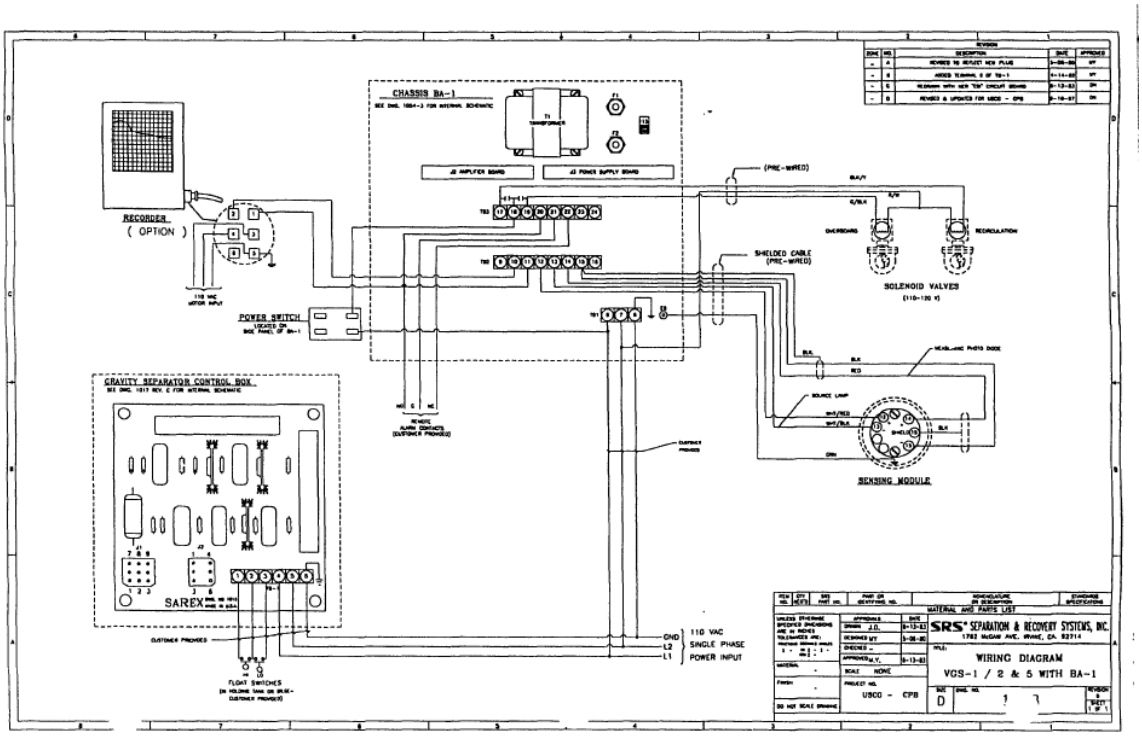


FIGURE #5

WIRING DIAGRAM VG1-1/2 & 5 WITH BA-A SHOWING HI & LOW FLOAT SWITCHES

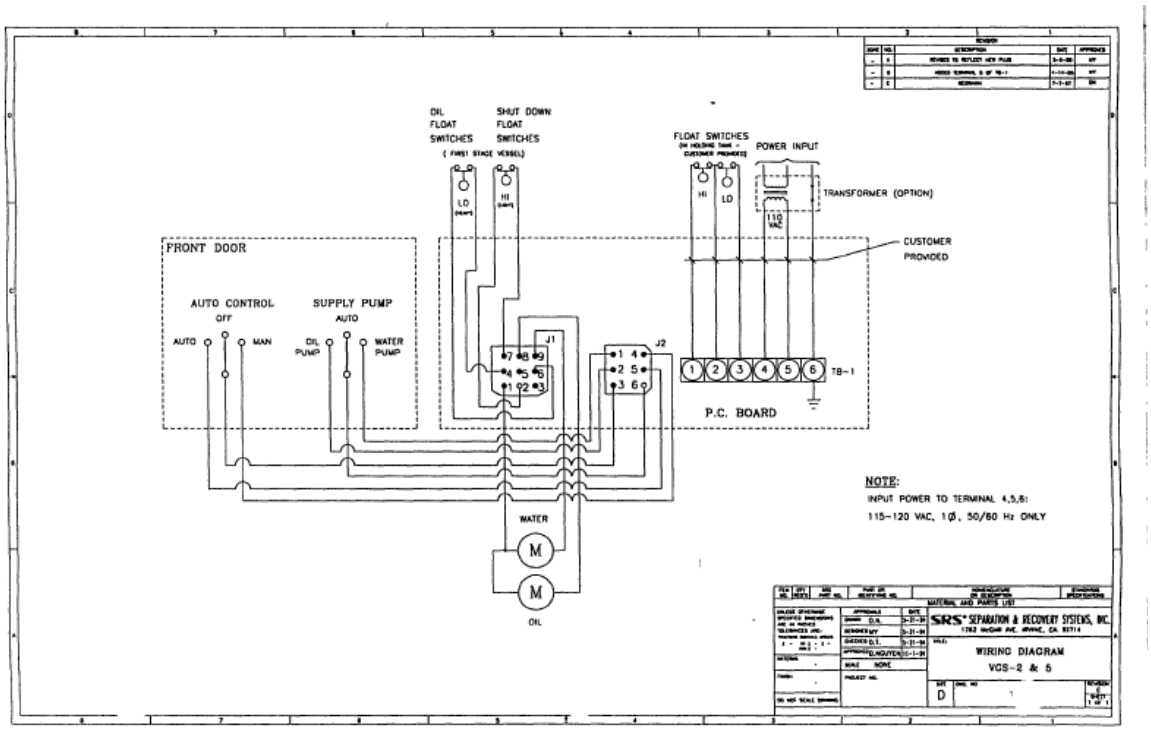


FIGURE #5

WIRING DIAGRAM VCS-2 & 5 SHOWING HI & LOW FLOAT SWITCHES

ITEM 10: JOINER PANEL RENEWAL

MI_62100_GBS_0604_110B

1 SCOPE

The intent of this item is to renew the joiner bulkhead panels and inspect and repair damage to the shower pans in the spaces listed in table 3.1.A.

Government Furnished Property: NONE

2 REFERENCES

Coast Guard Drawings:

110B-WPB 85-12, Rev -; Booklet of General Plans (Supercedes 110B-WPB-085-7)

Applicable Documents:

COMDTINST M10360.3, Rev C; Coatings and Colors Manual
MLCPAC Standard Specification 074, 3/21/2003; Welding and Allied Processes
The Society for Protective Coatings SSPC-SP 3, 11/1/2004; Power Tool Cleaning

3 REQUIREMENTS

The Contractor shall provide all labor and material to accomplish the following in accordance with the General Requirements:

3.1 The concerned work areas are listed in Table 3.1.A. Work to include the renewal of approximately 16 joiner panels, 200 sq. ft. of stainless steal sheeting, and misc. stainless steel corner brackets and flashing.

Table 3.1.A

Compartment Number	Compartment Name
2-13-2-L	CPO Head Shower
1-20-2-L	CO/XO Head Shower
2-28-3-L	AFT Head Shower

3.1.1 In the presence of the Coast Guard Inspector, inspect and test all affected equipment and systems to document original condition. Submit a CFR for each space noting any discrepancies in equipment and system operation.

3.1.2 Tag-Outs – Secure, isolate, and tag-out all affected mechanical, piping, and electrical systems in accordance with the General Requirements.

3.1.3 Remove or protect all interferences to the work. Tag all interferences that are removed to facilitate proper reinstallation. Ensure that all removed equipment is kept in a clean, dry, protected location. Obtain verification from the Coast Guard Inspector for the protective measure taken for equipment not removed.

3.2 GAS FREE CERTIFICATION

3.2.1 Gas free and certify affected compartments in accordance with the General Requirements. The affected compartments must be certified "Safe for Personnel – Safe for Hotwork" for the duration of work performed under this item.

3.2.2 Gas Free Certificates indicating the current status of each compartments shall be posted on the Quarterdeck and at each open access to the compartments. Provide one copy to the Coast Guard Inspector.

3.3 HOTWORK – Conduct all hotwork in accordance with MLCPAC Std Spec 074. All welds shall be continuous, 100% efficient welds.

3.4 Remove and scrap panels, designated by the Coast Guard Inspector, in the work area and dispose of in accordance with all applicable local, state, and federal laws and regulations.

3.5 Prepare all disturbed surfaces and all exposed bulkheads and decks to bare metal in accordance with SSPC-SP 3.

3.5.1 In the presence of the Coast Guard Inspector, inspect prepared surfaces and submit a CFR.

3.6 Prime and coat all prepared surfaces in accordance with the applicable sections of COMDTINST M10360.3.

3.7 Install new non-asbestos nomex-core honeycomb bulkhead joiner panels with laminate facing in place of those removed. Installation, facing (single or double laminate), and material thickness shall be in accordance with the drawing listed above. Suggested source of supply for new honeycomb bulkhead panels and aluminum posts is:

Advanced Structures Corp.
235 West Industry Court
Deer Park, NY 11729
Phone: 631-667-5000
E-mail: ADVSTRCORP@aol.com
Website: advancedstructurescorp.com

3.7.1 Where new non-structural bulkheads butt, intersect, or adjoin existing bulkheads, overheads, trim pieces and mounting hardware that fairs the overheads and decks, the Contractor shall install new fashion panel system to eliminate the possibility of a disjointed appearance.

3.7.2 Coast Guard Inspector will designate color and pattern of new bulkhead panels.

3.8 Restore all interferences.

3.8.1 Restore all work areas to a clean condition.

3.8.2 Clearing Tags – Restore all affected systems and clear tags in accordance with the General Requirements.

3.9 Coordinate all inspections with the Coast Guard Inspector to minimize production delays.

3.10 See Pictures below for greater detail of panel renewals:

CO/XO Shower to be renewed.
Joiner Panels etc.

CO Passageway Panel to be renewed.

Example of Stainless Sheeting to be renewed

Aft head shower panels for renewal

Aft Head Shower Panel Renewal

ITEM 11: FOREPEAK PRESERVATION

MI_63110_JMS_0507_110B

1 SCOPE

The intent of this item is to prepare, inspect and coat the entire forepeak compartment between frames 5 and frames 8 (approximatly 75 sq. ft.) and replace approximatly 35 linear feet of metal frame work near the data couple at frame 8.

Government Furnished Property: NONE

2 REFERENCES

Coast Guard Drawings:

110B-WPB 85-12, Rev -; Booklet of General Plans (Supercedes 110B-WPB-085-7)
110B-WPB 111-3, Rev F; Shell Expansion (Supercedes 110B-WPB-0111-1)
110B-WPB 117-1 Rev H; Transverse Sections (Frames 0 Thru 4)
110B-WPB 121-1, Rev D; Longitudinal Bulkheads

Applicable Documents:

COMDTINST M10360.3, Rev C, 6/9/2006; Coatings and Colors Manual
MIL-STD-1689, Rev A, 11/23/1990; Fabrication, Welding and Inspection of Ships Structure
MIL-STD-2035, Rev A, 5/15/1995; Nondestructive Testing Acceptance Criteria
MIL-A-22262, Rev B, Amd 2, 3/21/1996; Abrasive Blasting Media Ship Hull Blast Cleaning
MLCPAC Standard Specification 074, Rev -, 3/21/2003; Welding and Allied Processes
NAVSEA T9074-AS-GIB-010/271, Rev 97; Requirements for Non-Destructive Testing Methods
American Welding Society (AWS) D1.1/D1.1M:2006, 2008 Rev 08; Structural Welding Code–Steel, 20TH Edition
The Society for Protective Coatings SSPC-SP 1, Rev -, 11/1/2004; Solvent Cleaning
The Society for Protective Coatings SSPC-SP 10/NACE No.2, Rev -, 11/1/2004; Near-White Blast Cleaning
The Society for Protective Coatings SSPC-SP 12/NACE No.5, Rev -, 7/1/2002; Surface Preparation and Cleaning of Steel & Other Hard Materials by High and Ultrahigh Pressure Water Jetting Prior to Recoating
The Society for Protective Coatings SSPC-VIS 1, Rev -, 11/1/2004; Guide and Reference Photographs for Steel Surfaces Prepared by Dry Abrasive Blast Cleaning
The Society for Protective Coatings SSPC-SP 15, Rev -, 11/1/2004; Commercial Grade Power Tool Cleaning
The Society for Protective Coatings SSPC-VIS 3, Rev -; Guide and Reference Photographs for Steel Surfaces Prepared by Hand and Power Tool Cleaning

3 REQUIREMENTS

The Contractor shall provide all labor and material to accomplish the following in accordance with the General Requirements:

3.1 The concerned work area is the forepeak compartment (Comp. **3-0-0-V**). See 110B-WPB 85-12 and other referenced drawings for the location and general arrangement of the work area.

3.2 INTERFERENCES

3.2.1 The Cutter's personnel shall pump down the compartment to low suction and remove all interferences such as lines, ropes and other misc. items. The Contractor shall remove all residual liquid from the compartment (approximately 1 gallon).

3.2.2 In the presence of the Coast Guard Inspector, inspect and operationally test all affected systems and equipment to document the original condition. Submit a Condition Found Report (CFR) noting any discrepancies in equipment and system operation.

3.2.3 Tag-Outs – Secure, isolate, and tag-out all affected mechanical, piping, and electrical systems in accordance with the General Requirements.

3.2.4 Remove or protect all interferences. Obtain verification from the Coast Guard Inspector for protective measures.

3.3 SUPPORT

3.3.1 Provide adequate explosion proof lighting to illuminate the work area during cleaning, preparation, inspection and coating.

3.3.2 Maintain airtight integrity with the exception of portable ventilation equipment, to contain blast grit and paint fumes.

3.3.3 The Contractor shall provide all inspection and testing equipment, including but not limited to surface temperature thermometer, sling psychrometer, psychrometric chart, dry film paint thickness gauge, surface profile tape and spring micrometer.

3.3.4 Provide the Coast Guard Inspector with Material Safety Data Sheet (MSDS) for the paint batch and the manufacturer's application procedures for the coating system.

3.3.5 Notify the Coast Guard Inspector 48 hours prior to surface preparation and applying any coatings.

3.3.6 Contractor shall provide safety lines capable of preventing personnel from falling into the open compartment access. Post warning signs at the forward, aft, inboard and outboard sides of all open accesses. Warning signs may read: "DANGER, COVER IS REMOVED." Provide adequate lighting during night hours to illuminate hazards.

3.4 SURFACE PREPARATION

NOTE: The Contractor has the option of using either high-/ultrahigh-pressure waterjetting, power tool cleaning , abrasive blasting, or a combination of the each to achieve the required surface preparation standard.

3.4.1 In the presence of the Coast Guard Inspector, measure the surface temperature and dew point. Ensure that proper temperatures and humidity conditions exist for surface preparation.

3.4.2 High-/Ultrahigh-Pressure Waterjetting (Option 1):

3.4.2.1 For high- and ultrahigh-pressure water jetting, prepare the work area to a WJ-2 visual level in accordance with SSPC-SP 12.

3.4.3 Power Tool Cleaning (Option 2):

3.4.3.1 Prior to any surface preparation, remove all visible oil, grease, soil, drawing and cutting compounds, and other soluble contaminants from the steel surface in accordance with SSPC-SP 1.

3.4.3.2 Prepare the work area by power tool cleaning in accordance with SSPC-SP 15.

3.4.3.3 In the presence of the Coast Guard Inspector, compare the surface cleanliness level of the work area to SSPC-VIS 3 to verify that the surface meets the required SSPC-SP 15 cleanliness level.

3.4.4 Abrasive Blasting (Option 3)

3.4.4.1 Prepare the designated compartment by blasting to near white metal in accordance with SSPC-SP 10 using grit conforming to MIL-A-22262. Do not use a blasting material that contains oil or leaves an oil residue on the prepared surfaces. The contractor may employ resilient abrasive impregnated media (Sponge-Jet, Plastic Media Blasting).

NOTE: Sponge jet media does not ricochet and damage or contaminate adjacent areas as much as other blast media, however care should be taken to contain, control and collect sponge media..

3.4.4.2 In the presence of the Coast Guard Inspector, compare the surface cleanliness level of the work area to SSPC-VIS 1 to verify that the surface meets the required SSPC-SP 10 cleanliness level.

3.4.5 After surface preparation perform the following test/inspections (regardless of surface preparation method):

3.4.5.1 In the presence of the Coast Guard Inspector, the Contractor shall inspect the condition of the substrate. Check for cracks, corrosion, or any other deficiencies in the internal plating, bulkheads, structural members, vents, striker plates, pipes, pipe hangers, ladders, and tank access covers. Submit a CFR for each tank documenting the results of the inspections. During this inspection the Contractor shall mark locations in the work area where the entire coating system has failed.

3.4.5.2 In the presence of the Coast Guard Inspector, and for every 100 square feet of work area, take and record three (3) surface profile readings from randomly selected locations. Submit results and surface profile tapes to the Coast Guard Inspector. The surface profile shall be within the manufacturer's published recommendation. If no recommendation exists, the profile shall be a minimum of 1.5 and a maximum of 2.5 mils.

NOTE: Waterjetting does not provide any additional anchor profile to the surface. The use of another surface preparation method or the addition of abrasives to the blast water may be necessary to provide the proper anchor.

3.4.5.3 In the presence of the Coast Guard Inspector, and for every 500 square feet of work area, take and record the non-visible contamination level of one (1) randomly selected location. Use one of the methods listed in Appendix A of SSPC-SP 12. The nonvisual contamination condition shall be a NV-2(SC-2) level or better as defined in SSPC-SP 12.

3.5 SPACE AND STIFFENER DATA COUPLE REPAIRS

3.5.1.1 Crop out and renew the entire length of both bulkhead 8 transverse stiffeners with like in kind material (approximately 28 linear ft.), in accordance with CG Dwgs 110B-WPB 111-3, 110B-WPB 117-1 Rev H, 110B-WPB 121-1, Rev D, MLCPAC Standard Specification 074, Welding and Alied Processes and the pictures noted below. *Note: upper transverse bulkhead stiffener is located at the Data Couple which joins the Aluminum deck to the steel bulkhead at frame 8.

3.5.1.2 Crop out and renew the entire length of both bulkhead 8 vertical stiffeners with like in kind material (approximately 14 linear ft.), located on either side of the access ladder into the space in accordance with CG Dwgs 110B-WPB 111-1, 110B-WPB 117-1 Rev H, 110B-WPB 121-1, Rev D, MLCPAC Standard Specification 074, Welding and Alied Processes and the pictures noted below.

3.5.1.3 Ultrasonically test (UT) new insert welds in accordance with NAVSEA T9074-AS-GIB-010/271. Test requirements shall be in accordance with MIL-STD-1689. Submit a CFR documenting UT results. Make necessary

weld repairs until a satisfactory UT is obtained. Test acceptance standards shall be in accordance with MIL-STD-2035.

3.5.2 In the presence of the Coast Guard Inspector, visually inspect and perform an ultrasonic or dye penetrant test on 100% all new welds in accordance with AWS D1.1. Test acceptance standards shall be in accordance with AWS D1.1. Repair all weld deficiencies and retest.

3.5.3 Upon completion of all welding, perform a liquid film bubble emission test on all water tight boundaries (hull plating welds) in accordance with the General Requirements.

3.6 COATING APPLICATION

3.6.1 In the presence of the Coast Guard Inspector, measure the surface temperature and the dew point. Ensure that proper temperatures and humidity exist for coating application.

NOTE: The surface temperature must be at least 5°F above the dew point during all coating application.

3.6.2 Coat the prepared surfaces with the following coating system in accordance with COMDTINST M10360.3 (including but not limited to Appendices B and C) and the manufacturer's instructions:

One coat, 6-7 mils DFT, Moisture Tolerant Epoxy

Stripe coat edges, weld seams, welds of attachments and appendages, cutouts, corners, butts, foot/handholds (including inaccessible areas such as back side of piping, under side of I-beams), and other mounting hardware (non-flat surface), with one coat 6-7 mils DFT, Moisture Tolerant Epoxy. Stripe coating applied shall be neat in appearance, minimizing extra thickness applied to edges as well as streaks and drops of paint. The stripe coat shall encompass all edges as well as at least a one-inch border outside each edge and weld. Stripe coat shall be a different color from both the paint over which it is being applied.

Second coat, 6-7 mils DFT, Moisture Tolerant Epoxy

3.6.3 In the presence of the Coast Guard Inspector, use the dry film paint thickness gauge to verify the dry film thickness.

3.7 RESTORE

3.7.1 Remove all plugs, tools, and foreign objects from the compartment. The Coast Guard Inspector will conduct a final inspection of the compartment to verify that all tools, plugs, and foreign objects have been removed.

3.7.2 Clearing Tags – Restore all affected systems and clear tags in accordance with the General Requirements.

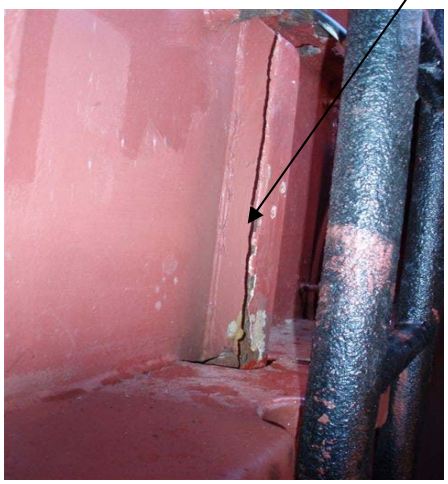
3.8 Coordinate all inspections with the designated Coast Guard Inspector to minimize production delays.

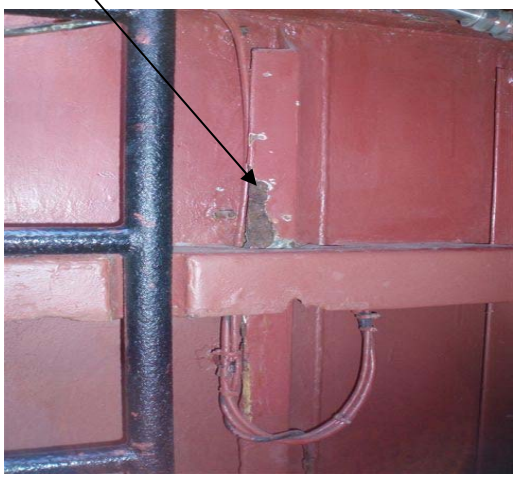
Pictures of framework to be renewed:

Lower Horizontal Bulkhead 8 stiffener to be renewed (approximately 14 linear ft).

Upper Horizontal Bulkhead 8 Stiffener to be renewed (approximately 14 linear ft.) located at data couple connecting Aluminum Deck to Bulkhead 8 (steel).

Vertical Bulkhead 8 stiffener's to be renewed approximately 14 linear ft. total (7 linear ft.





ITEM 12: SPACE PRESERVATION

MI_63110_JMS_0507_110B

1 SCOPE

The intent of this work item is to prepare, prime and coat 100% of the interior of the Magazine Space (2-15-2-M).

Government Furnished Property: NONE

2 REFERENCES

Coast Guard Drawings:

110B-WPB 85-12, Rev -; Booklet of General Plans (Supercedes 110B-WPB-085-7)

Applicable Documents:

COMDTINST M10360.3B, Coatings and Colors Manual, 6/12/01
Steel Structures Painting Council, SSPC-SP 1, Solvent Cleaning, 9/1/2000
Steel Structures Painting Council, SSPC-SP 10, Near White Blast Cleaning, 9/1/2000
Steel Structures Painting Council, SSPC-SP 12, (Joint Surface Preparation Standard NACE No. 5) Surface Preparation and Cleaning of Steel and Other Hard Materials by High- And Ultrahigh-Pressure Water Jetting Prior to Recoating, 1/1/1995
Steel Structures Painting Council, SSPC-SP VIS-1-89, Visual Standards for Abrasive Blast Cleaned Steel, 1/1/1989

3 REQUIREMENTS

The Contractor shall provide all labor and material to accomplish the following in accordance with the General Requirements:

3.1 The concerned work area is the space (2-15-2-M). See the referenced CG Dwg and attached photographs for arrangement of the work area.

3.2 INTERFERENCES

3.2.1 In the presence of the Coast Guard Inspector, inspect and test all affected equipment and systems to document original condition. Submit a Condition Found Report (CFR) for each space noting any discrepancies in equipment and system operation.

3.2.2 Tag-Outs – Secure, isolate, and tag-out all affected mechanical, piping, and electrical systems in accordance with the General Requirements.

3.2.3 Remove or protect all interferences to the work. Tag all interferences that are removed to facilitate proper reinstallation. Ensure that all removed equipment is kept in clean, dry, protected location. Obtain verification from the Coast Guard Inspector for the protective measures taken for equipment not removed.

3.2.4 Interferences include but are not limited to: internal loose ammunition racks, insulation, and various piping.

3.2.5 Remove all insulation and sheathing from the overhead and bulkheads in the compartment and scrap in accordance with all applicable local, state, and federal laws and regulations.

3.3 SUPPORT

3.3.1 The Contractor shall provide all inspection and testing equipment, including but not limited to surface temperature thermometer, sling psychrometer, psychrometric chart, dry film thickness gauge, surface profile tape and spring micrometer.

3.3.2 Present the Coast Guard Inspector the Material Safety Data Sheet (MSDS) for the paint batch. Also provide the manufacturer's application procedures for the coating system.

3.3.3 Notify the Coast Guard Inspector 48 hours prior to surface preparation and applying any coatings.

3.4 SURFACE PREPARATION

3.4.1 In the presence of the Coast Guard Inspector, measure the surface temperature and dew point. Ensure that proper temperatures and humidity conditions exist for surface preparation.

NOTE: The surface temperature must be at least 5°F above the dew point during all surface preparation.

3.4.2 Abrasive Blasting:

3.4.2.1 Prior to any surface preparation, remove all visible oil, grease, soil, drawing and cutting compounds, and other soluble contaminants from the surface in accordance with SSPC-SP 1.

3.4.2.2 Prepare the overhead and bulkheads to a commercial blast in accordance with SSPC-SP 10. Do not use a blasting material that contains oil or leaves an oily residue on the prepared surfaces.

3.4.2.3 In the presence of the Coast Guard Inspector, compare the surface cleanliness level of the work area to SSPC-VIS 1 to verify that the surface meets the required SSPC-SP 10 cleanliness level.

3.4.3 After surface preparation, perform the following tests and inspection.

3.4.3.1 In the presence of the Coast Guard Inspector, the Contractor shall inspect the condition of the substrate over the entire work area. Check for cracks, corrosion, or any other deficiencies in the bulkhead, hull and overhead plating. Submit a CFR.

3.4.3.2 In the presence of the Coast Guard Inspector, and for every 100 square feet of work area, take and record three (3) surface profile readings from randomly selected locations. Submit results and surface profile tapes to the Coast Guard Inspector. The surface profile shall be within the manufacturer's published recommendation. If no recommendation exists, the profile shall be a minimum of 1.5 and a maximum of 2.5 mils.

3.4.3.3 In the presence of the Coast Guard Inspector, and for every 500 square feet of work area, take and record the non-visible contamination level of one (1) randomly selected location. Use one of the methods listed in Appendix A of SSPC-SP 12. The nonvisual contamination condition shall be a NV-2(SC-2) level or better, as defined in SSPC-SP 12.

3.4.4 Where new paint is to be merged into the existing paint system, provide a 3 inch wide, smoothly tapered boundary from the existing paint to the prepared metal surface.

3.5 COATING APPLICATION

3.5.1 In the presence of the Coast Guard Inspector, measure the surface temperature and dew point. Ensure that proper temperatures and humidity conditions exist for coating application.

NOTE: The surface temperature must be at least 5°F above the dew point during all coating application.

3.5.2 Upon verification of the surface preparation by the Coast Guard Inspector, paint the bulkheads and overhead in accordance with COMDTINST M10360.3 and the manufacturer's instructions. Areas to be covered with insulation shall be coated with the primer coat only.

3.5.3 In the presence of the Coast Guard Inspector, use the dry film paint thickness gauge to verify and dry film thickness for the total system.

3.6 RESTORE

3.6.1 Restore all interferences.

3.6.2 Restore all work areas to a clean condition.

3.6.3 Clearing Tags – Restore all affected systems and clear tags in accordance with the General Requirements.

3.7 Coordinate all inspections with the designated Coast Guard Inspector to minimize production delays.

Magazine Pictures

ITEM 13: MAST REPAIR SUPPORT

MI_63120_JMS_0507_110B

1 SCOPE

The intent of this item is to inspect all associated mast foundation welds with the dye-penetrant test (approximatly 8 mounts) preserve all disturbed areas and renew 12 metal D-rings on the mast.

Government Furnished Property: NONE

2 REFERENCES

Coast Guard Drawings:

Applicable Documents:

COMDTINST M10360.3, Rev C, 6/9/2006; Coatings and Colors Manual
The Society for Protective Coatings SSPC-SP 1, Rev -, 11/1/2004; Solvent Cleaning
Federal Standard FED-STD-595B(1), Rev B, Not 1; Color Used in Government Procurement
American Welding Society (AWS) D1.1/D1.1M:2006, 2008 Rev 08; Structural Welding Code–Steel, 20TH Edition
MLCPAC Standard Specification 074, 3/21/2003; Welding and Allied Processes

3 REQUIREMENTS

The Contractor shall provide all labor and material to accomplish the following in accordance with the General Requirements:

3.1.1 In the presence of the Coast Guard Inspector, wire wheel down to bare metal and visually inspect and perform an ultrasonic or dye penetrant test on 100% of all specified welds as pointed out by Coast Guard inspector (approximately 8 mounts (approximately 16 feet of welds to be inspected); reference pictures below) in accordance with AWS D1.1. Test acceptance standards shall be in accordance with AWS D1.1. Submit a CFR detailing the results of each dye penetrant test with recommended action to the Coast Guard.

3.2 Prepare and preserve the disturbed portions of the mast IAW COMDTINST M10360.3, Rev C.

3.3 Contractor shall renew approximately 12 metal D-rings located on the top of the mast IAW MLC Standard Specification 074, Welding and Alied Processes (see attached pictures for reference). D rings serve as the anchor points for the flag halyards on the mast.

3.4 INTERFERENCES

3.4.1 In the presence of the Coast Guard Inspector, inspect and test all affected equipment and systems to document original condition. Submit a Condition Found Report (CFR) noting any discrepancies in equipment and system operation.

3.4.2 Tag-Outs – Secure, isolate, and tag-out all affected mechanical, piping, and electrical systems in accordance with the General Requirements.

3.4.3 For the preservation portion of this specification, construct a temporary shelters necessary to protect work area from weather and to contain abrasive blast material, waste, and paint overspray from leaving work area, in accordance with all applicable local, state and federal laws and regulations.

3.5 SURFACE PREPARATION

3.5.1.1 Prior to any surface preparation, remove all visible oil, grease, soil, drawing and cutting compounds, and other soluble contaminants from the surface in accordance with SSPC-SP 1. Estimated area to be eight (8) two (2) square foot areas.

3.5.1.2 Prepare the disturbed surfaces for coating in accordance with the SSPC procedure of the contractor's choice.

3.5.2 After surface preparation perform the following test/inspections (regardless of surface preparation method):

3.5.2.1 Prior to applying any paint, remove all dust and abrasive blast residue as well as grease, oil, or other contaminants from the blasted area

3.5.3 Where new paint is to be merged into the existing paint system, provide a 1 inch wide, smoothly tapered boundary from the existing paint to the prepared metal surface.

3.6 COATING APPLICATION

3.6.1 Assure the surface temperature and the dew point are proper for the temperatures and humidity conditions exist for paint application.

3.6.2 Coat the prepared surfaces with the following paint system in accordance with COMDTINST M10360.3 and the manufacturer's instructions. Colors specified are FED-STD-595 colors.

One mist coat, 1-2 mils DFT, Epoxy Polysiloxane

One coat, 5-6 mils DFT, Epoxy Polysiloxane, Spar (10371).

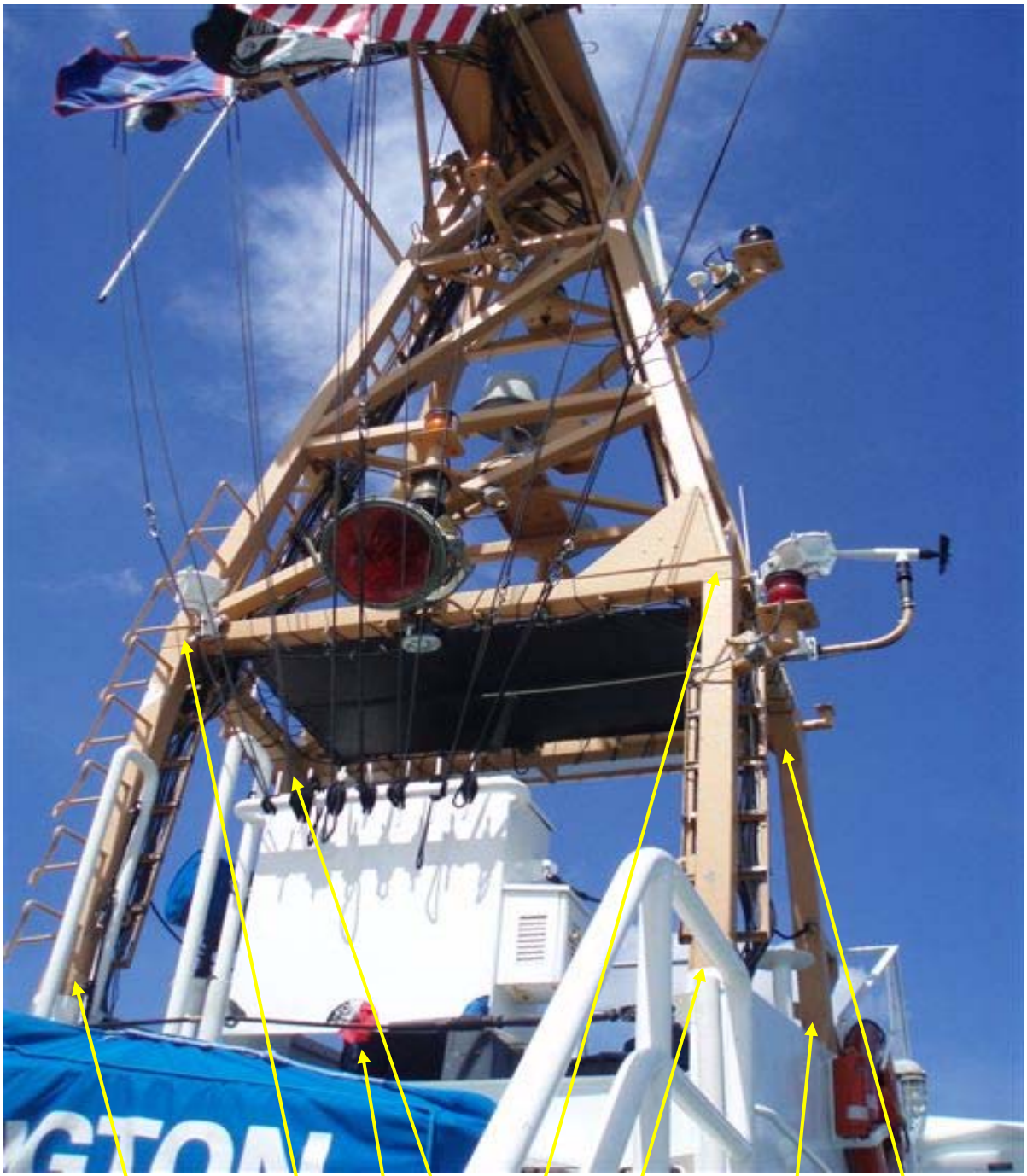
3.7 RESTORE

3.8 CLEARING TAGS – Restore all affected systems and clear tags in accordance with the General Requirements.

3.9 Remove temporary shelter and scaffolding, if used.

3.10 Restore work and surrounding area to a clean condition. Ensure all abrasive blast grit and paint waste is removed and disposed in accordance with all applicable local, state and federal laws and regulations.

3.11 Coordinate all inspections with the designated Coast Guard Inspector to minimize production delays.



All 8 primary mast support mounts to be inspected (approximately 16 feet of weld).

D-Rings to be renewed on mast, approximately 12 in total.

ITEM 14: DECK COVERINGS (INTERIOR POLYMERIC) RENEW

MI_63400_GBS_0604_110B

1 SCOPE

The intent of this item is to renew interior deck coverings with a polymeric deck covering system (MIL-PRF-24613, Type III, Epoxy).

Government Furnished Property: NONE

2 REFERENCES

Coast Guard Drawings:

110B-WPB 85-12, Rev -; Booklet of General Plans (Supercedes 110B-WPB-085-7)

Applicable Documents:

COMDTINST M10360.3, Rev C; Coatings and Colors Manual
MIL-D-21631, Rev A, Not 1; Deck Covering, Latex Concrete
MIL-D-23134, Rev A, Not 1; Deck Underlay and Covering, Insulating, Magnesia Aggregate Mixture
MIL-D-18873, Rev B, Amd 3; Deck Covering Magnesia Aggregate Mixture
MIL-PRF-3135, Rev G, Amd 4; Deck Covering Underlay Materials
MIL-PRF-24613, Amd 2, Not 1; Deck Covering Materials, Interior, Cosmetic Polymeric
MIL-STD-1689, Rev A; Fabrication, Welding and Inspection of Ships Structure
MLCPAC Standard Specification 634, 3/1/2000; Deck Covering Renewal
The Society for Protective Coatings SSPC-SP 11, 11/1/2004; Power Tool Cleaning to Bare Metal

3 REQUIREMENTS

The Contractor shall provide all labor and material to accomplish the following in accordance with the General Requirements:

3.1 GENERAL

3.1.1 The concerned work areas are listed in the following table. See the CG Dwgs referenced above arrangement and details of the work area.

Table 3.1.A

Compartment Name	Compartment Number	Approx. sq ft
CPO P-Way	2-13-0-L	45
CPO Head	2-13-2-L	10
Aft Berthing Head	2-28-3-L	20
Forward Sound Void	2-21-2-L	40
Aft Sound Void	2-28-1-L	10

3.1.2 In the presence of the Coast Guard Inspector, inspect and test all affected equipment and systems to document original condition. Submit a CFR for each space noting any discrepancies in equipment and system operation.

3.1.3 Tag-Outs – Secure, isolate, and tag-out all affected mechanical, piping, and electrical systems in accordance with the General Requirements.

3.2 INTERFERENCES – Remove or protect all interferences. Obtain verification from the Coast Guard Inspector for protective measures.

3.3 REQUIREMENTS – Follow all general deck covering and fire prevention requirements stated in MLCPAC Std Spec 634.

3.4 DECK COVERING REPLACEMENT

3.4.1 Remove and scrap all existing deck covering systems from the work areas listed in Table 3.1.A above, taking care not to disturb surrounding layers or materials. Disposal shall be in accordance with all local, state, and federal laws and regulations.

3.4.2 Power tool clean to bare metal all steel and/or aluminum (110's) decks in the work areas in accordance with SSPC-SP 11.

3.4.3 In the presence of the Coast Guard Inspector, conduct a visual inspection of all clean decks in the work areas. Submit a CFR to the Coast Guard Inspector.

3.4.4 In the presence of the Coast Guard Inspector, measure any dimpled/sagging/dished deck plate across the minor dimension of the plate. Using Figures 21 and 22 for steel and Figure 23 and 24 for aluminum (see below), from MIL-STD 1689, to determine the acceptance criteria of the dimpled plate. Submit a Condition Found Report to Coast Guard Inspector to report plate sections that exceed the criteria and need renewal.

3.4.5 Surfaces shall be completely free of corrosion products, mill scale, dirt, oil, grease, moisture, deteriorated paint, and other surface contaminants. Apply appropriate deck covering system primer coat in accordance with COMDTINST M10360.3 and manufacturer's instructions as soon as practicable after cleaning, but in no instance longer than 24 hours.

3.4.6 Install underlay material in the work areas conforming to MIL-PRF-3135 in accordance with MLCPAC Std Spec 634 and Manufacturer's Instruction. Underlay material shall be compatible with the deck covering system being installed. For bidding purposes, the Contractor shall provide twice the required amount of underlay material to do the work.

3.4.6.1 Over Tanks and Hot Machinery Spaces – Install insulation type underlayment over tanks and hot machinery spaces in accordance with MIL-D-23134 and MLCPAC Std Spec 634.

3.4.6.2 Aluminum Decks in Ammo Stowage – Install latex concrete type underlayment over aluminum decks in ammunition stowage spaces in accordance with MIL-D-21631 and MLCPAC Std Spec 634.

3.4.6.3 Steel Decks in Ammo Stowage – Install Ammunition Magnesite underlayment over steel decks ammunition stowage spaces in accordance with MIL-D-18873 and MLCPAC Std Spec 634.

3.4.7 Install polymeric deck covering system in the work areas in accordance with MLCPAC Std Spec 634. Polymeric system shall conform to MIL-PRF-24613, Type III, Epoxy. Known manufacturers of this product include: AMERICAN HI-TECH FLOORING COMPANY, 952 Norfolk Square Norfolk, Virginia 23502; Phone: (800) 436-6501; Fax: (757) 466-1219. Color shall be PT-679 Twilight Blue.

3.4.8 Thoroughly seal the deck covering system with two coats of sealer, in accordance with manufacturer's instructions.

NOTE: Sealer coats shall be installed as thin as possible while still coating the entire surface so that a slip resistant orange peel effect is present on the finished deck.

3.4.9 Caulk all edges of decking after poured deck covering has cured to prevent water intrusion under deck.

3.4.10 Install cove base molding in all work areas in accordance with MLCPAC Std Spec 634.

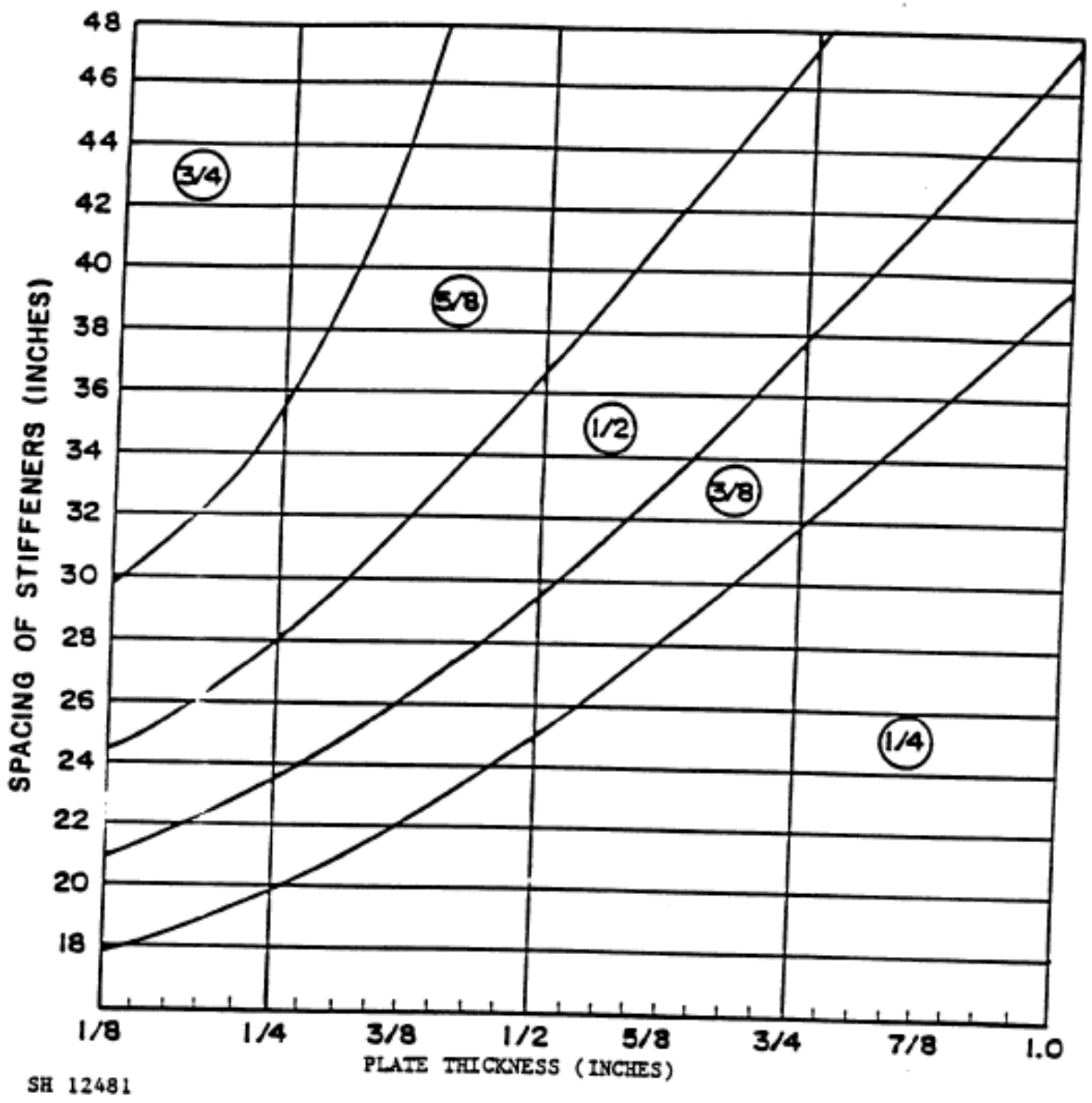
3.5 COMPARTMENT RESTORATION

3.5.1 Restore all interferences. Restore all work areas to a clean condition.

3.5.2 Clearing Tags – Restore all affected systems and clear tags in accordance with the General Requirements.

3.6 Coordinate all inspections with the designated Coast Guard Inspector to minimize production delays.

MIL-STD-1689A(SH)

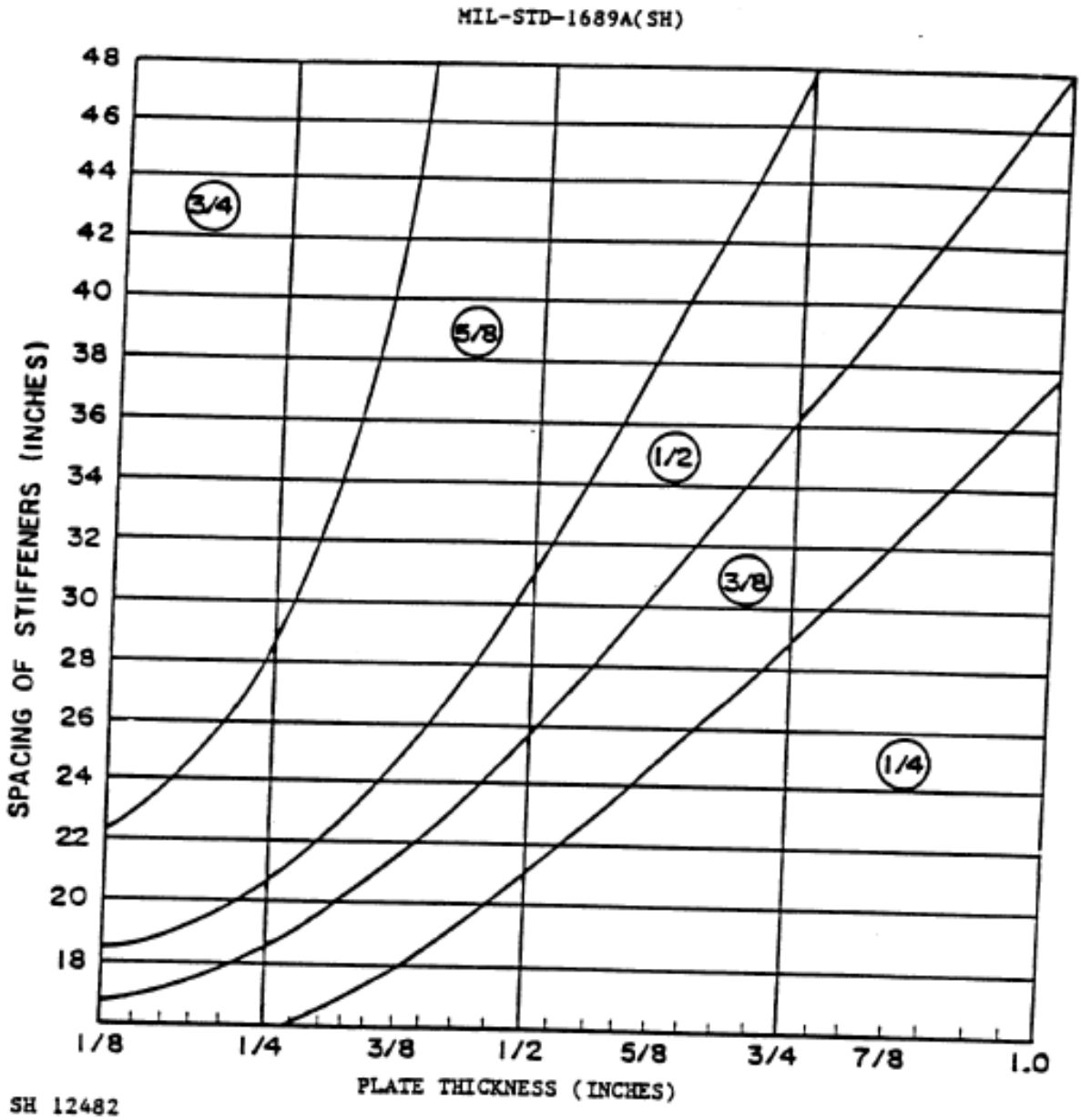


SH 12481

Applicability of tolerances:

(1) Entire shell.
(2) Uppermost strength deck.
(3) Longitudinal strength structure within the midships 3/5 length which includes inner-bottom, tank top and the deck next below the uppermost strength deck if continuous above machinery spaces.
(4) In transversely framed ships, the permissible unfairness for structure noted in (1), (2) and (3) above is reduced by 1/8 inch.
(5) Bulwarks and exterior superstructure bulkheads.

FIGURE 21. Surface ship, permissible unfairness in steel welded structure.



SH 12482

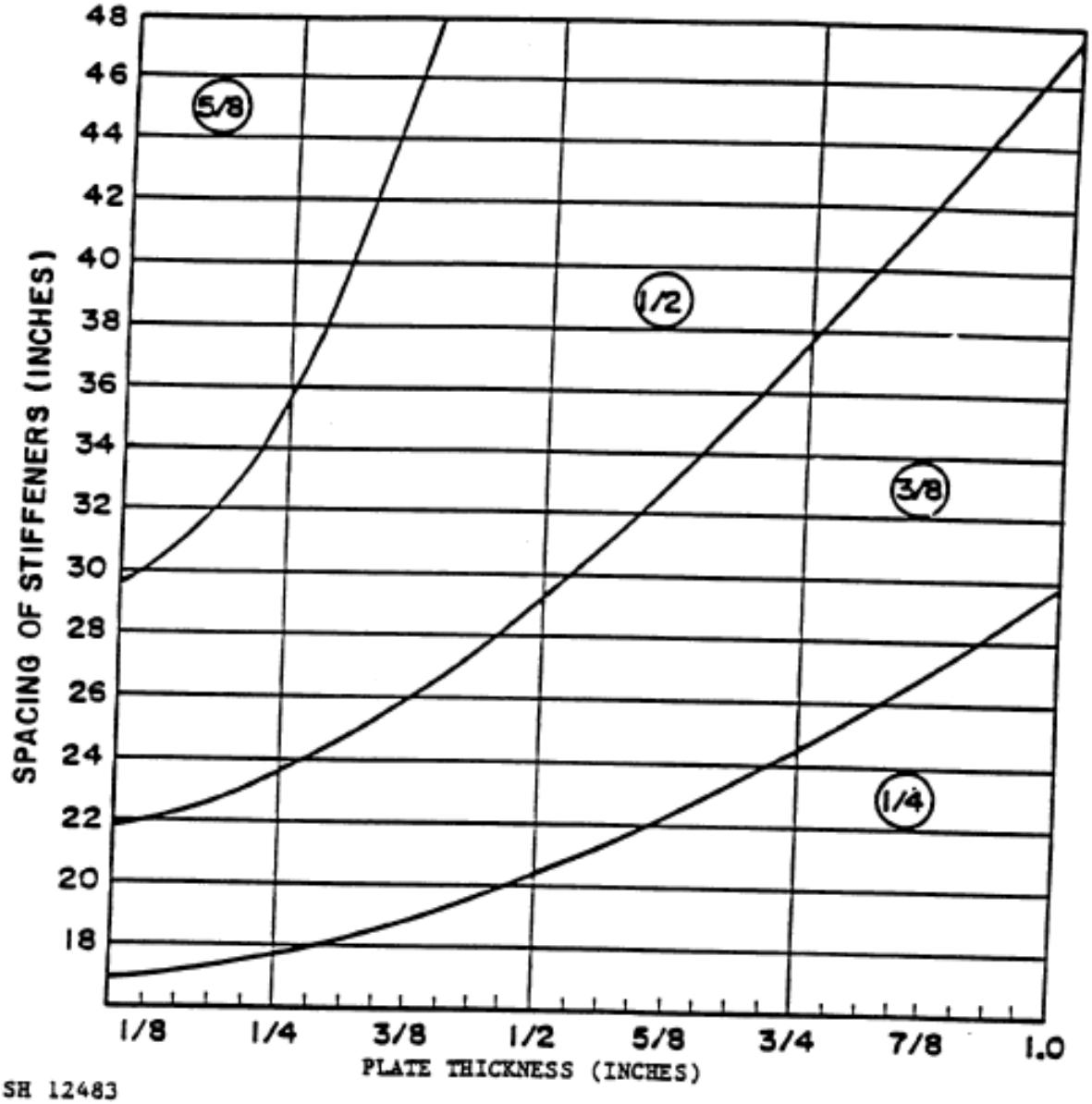
Applicability of tolerances:

This figure is applicable in the following areas except where figure 21 governs.

(1) Structural bulkheads forming a boundary of a living space (stateroom, office, berthing, messing, or lounge area) and passageways contiguous to such spaces.
(2) Decks within the hull and superstructure in way of the above living spaces.
(3) Decks exposed to the weather.
(4) Tank and main transverse bulkheads.
(5) Inner-bottom plate longitudinals and transverses.

FIGURE 22. Surface ship, permissible unfairness in steel welded structure.

MIL-STD-1689A(SH)



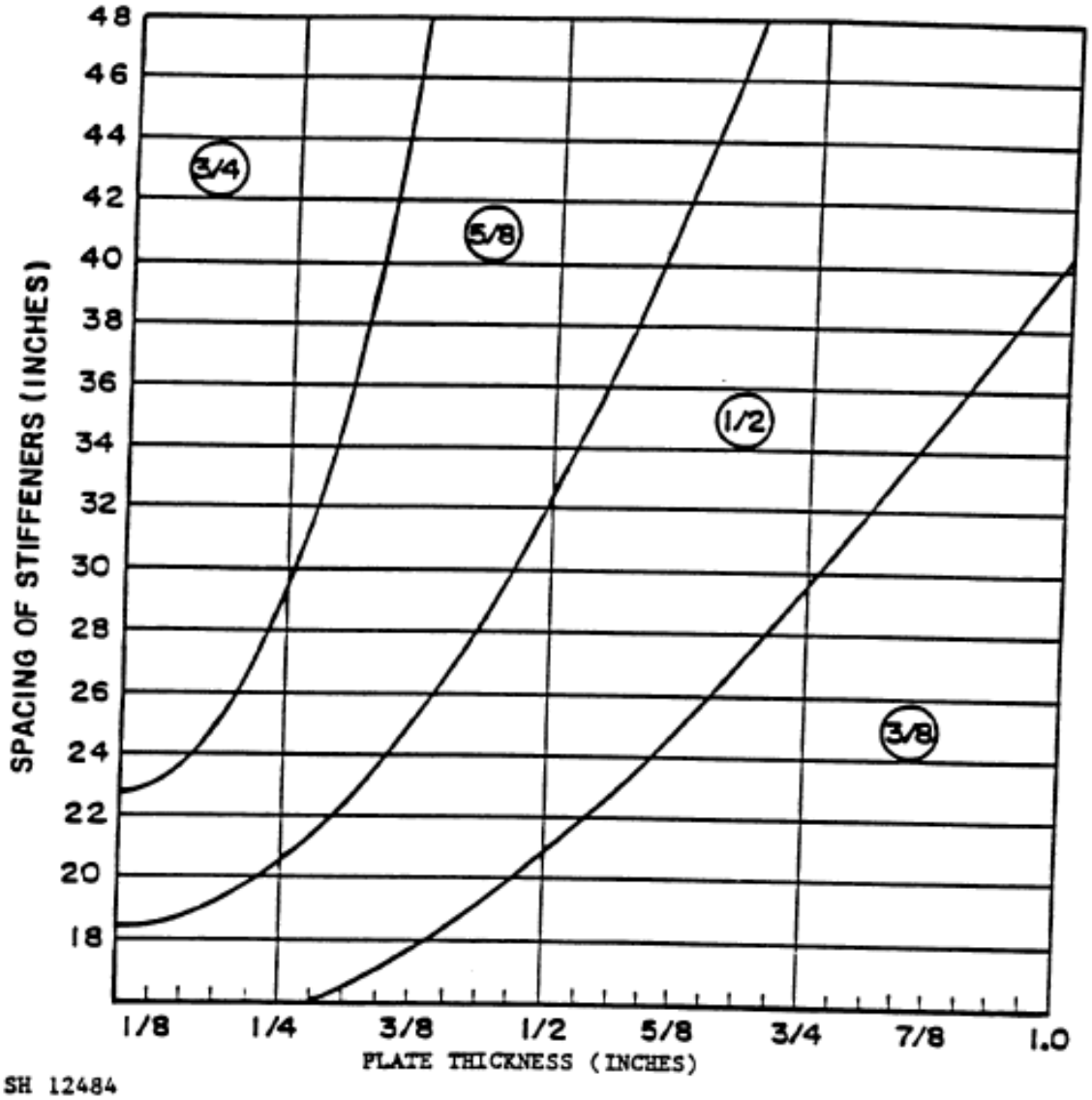
SH 12483

Applicability of tolerances:

(1) Entire shell.
(2) Uppermost strength deck.
(3) Longitudinal strength structure within the midships 3/5 length which includes inner-bottom, tank top, and the deck next below the uppermost strength deck if continuous above machinery spaces.
(4) In transversely framed ships, the permissible unfairness for structure noted in (1), (2) and (3) above is reduced by 1/8 inch.
(5) Bulwarks and exterior superstructure bulkheads.,

FIGURE 23. Surface ship, permissible unfairness in aluminum welded structure.

MIL-STD-1689A(SH)



SH 12484

Applicability of tolerances:
This figure applies in the following areas except where figure 23 governs.

(1) Structural bulkheads forming a boundary of a living space (stateroom, office, berthing, messing, or lounge area) and passageways contiguous to such spaces.
(2) Decks within the hull and superstructure in way of the above living spaces.
(3) Decks exposed to the weather.
(4) Tank and main transverse bulkheads.
(5) Inner-bottom plate longitudinals and transverses.

FIGURE 24. Surface ship, permissible unfairness in aluminum welded structure.

ITEM 15: INSULATION RENEWAL

MI_63500_JAH_1204_110B

1 SCOPE

The intent of this item is to renew insulation in the designated compartments.

Government Furnished Property: NONE

2 REFERENCES

Coast Guard Drawings:

110B-WPB 85-12, Rev -; Booklet of General Plans (Supercedes 110B-WPB-085-7)
110B-WPB 635-1, Rev C; Linings & Insulation Plan & Details

Applicable Documents:

COMDTINST M10360.3B, B, Coatings and Colors Manual, 11/24/2003
COMDTINST M6260.16A, CH-1, Asbestos Exposure Control Manual, 2/27/96
MIL-STD-769(SH), Rev J; Thermal Insulation Requirements for Machinery and Piping, 10/9/1990
MLCPAC Standard Specification 074, Welding and Allied Processes, 3/21/2003
Naval Ships' Technical Manual, Chapter 635, Thermal, Fire and Acoustic Insulation
Steel Structures Painting Council, SSPC-SP 3, Power Tool Cleaning, 9/1/2000

3 REQUIREMENTS

The Contractor shall provide all labor and material to accomplish the following in accordance with the General Requirements:

3.1 GENERAL – The concerned work areas are listed in Table 3.1.A. See the CG Dwg(s) referenced above for a general arrangement of the work area.

Table 3.1.A

Compartment Name	Compt. No.	Approx. sq ft
Aft Steering (Entire FWD Bulkhead)	3-33-0-E	140
Battery Space STBD Bulkhead & AFT Bulkhead behind A/C compressor	3-32-0-E	45

3.1.1 In the presence of the Coast Guard Inspector, inspect and test all affected equipment and systems to document original condition. Submit a CFR for each space noting any discrepancies in equipment and system operation.

3.1.2 Tag-Outs – Secure, isolate, and tag-out all affected mechanical, piping, and electrical systems in accordance with the General Requirements.

3.2 GAS FREE CERTIFICATION

3.2.1 No hot work is anticipate in this work item.

3.3 INTERFERENCES

3.3.1 Remove or protect all interferences to the work. Tag all interferences that are removed to facilitate proper reinstallation. Ensure that all removed equipment is kept in a clean, dry, protected location. Obtain verification from the Coast Guard Inspector for the protective measure taken for equipment not removed.

3.3.2 Prior to any hotwork, including use of spark-producing power tools, certify all affected compartments as "Safe for Personnel – Safe for Hotwork" in accordance with the General Requirements.

3.4 INSULATION REMOVAL – Remove insulation from the designated work area(s). Dispose in accordance with local, state, and federal laws and regulations.

3.5 SURFACE PREPARATION – Prepare all steel surfaces where insulation was removed by power tool cleaning in accordance with SSPC-SP 3.

3.5.1 In the presence of the Coast Guard Inspector, inspect all prepared surfaces for deterioration or damage. Submit a CFR to the Coast Guard Inspector.

3.5.2 Upon verification of the surface preparation by the Coast Guard Inspector, coat the prepared surfaces in accordance with COMDTINST M10360.3. Apply the primer coats only.

3.6 INSTALLATION – Install new insulation in accordance with referenced CG Drawings and NSTM Chapter 635.

3.7 PREPARATION – Prepare and coat all new insulation material in accordance with COMDTINST M10360.3B. Final topcoat shall match original existing color.

3.8 COMPARTMENT RESTORATION

3.8.1 Restore all interferences previously removed or protected.

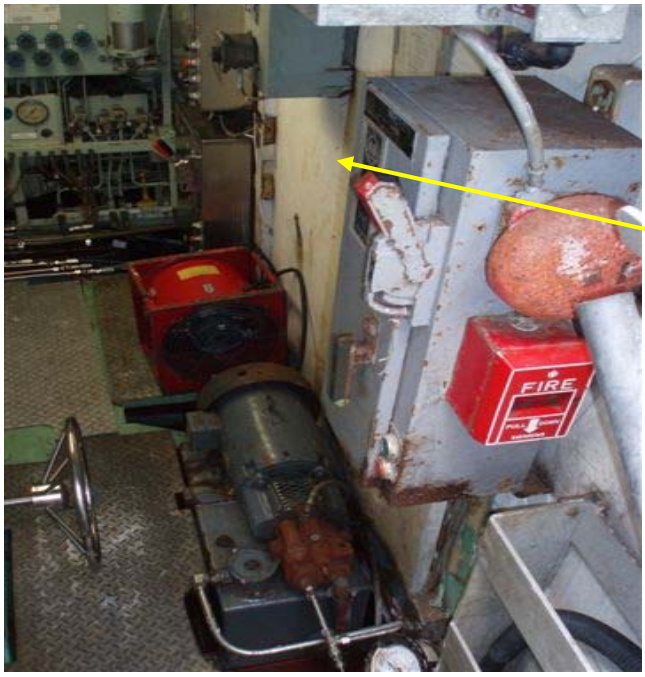
3.8.2 Restore all affected work areas to a clean condition.

3.8.3 Clearing Tags – Restore all affected systems and clear tags in accordance with the General Requirements.

3.9 Coordinate all inspections with the designated Coast Guard Inspector to minimize production delays.

Area behind A/C Compressor to be renewed (Battery

Area to be renewed in Battery Space (STBD Bulkhead



Entire Aft bulkhead to be renewed (Aft Steering)

ITEM 16: TEMPORARY SERVICES, DOCKSIDE, HOME PIER

MI_86351_RRY_0107_110

1 SCOPE

The intent of this item is to make the cutter safe and habitable during the repair availability while work is completed at the cutter's home pier.

Government Furnished Property: NONE

2 REFERENCES

Coast Guard Drawings: NONE

Applicable Documents:

MLCPAC Standard Specification 074, Welding and Allied Processes, 3/21/2003

3 REQUIREMENTS

The Contractor shall provide all labor and material to accomplish the following in accordance with the General Requirements:

3.1 GENERAL

3.1.1 The Contractor shall make all temporary service connections and provide equipment by the end of the first working day of the contract. All connections shall be made so that the hazards to passing personnel are minimal. The Contractor shall provide the services continuously for the entire repair period specified in the contract, plus any extensions thereof that are not resulting from added work. The temporary services shall be disconnected only when necessary to shift the cutter, and shall be restored for normal use within one hour after completion of the evolution. The Contractor shall notify the Coast Guard Inspector a minimum of 24 hours in advance of any scheduled disruption of temporary services.

3.1.2 The Coast Guard Inspector will provide cutter personnel, if necessary, to help the Contractor identify locations aboard the cutter where the Contractor may connect to the cutter's systems for providing services to the cutter.

3.1.3 Monitor all temporary services to identify deficient services before failures occur, and promptly restore any disruptions of services. Upon departure of cutter from facility, the Contractor shall disconnect all temporary services.

3.1.4 The Contractor shall provide all services required for the completion of all Definite and Optional Items. These services include, but are not limited to, compressed air, crane services, garbage and refuse, phones, and portable head facilities. These services are for the Contractor's use only. At no time is the Contractor to jumper into the ship's services.

3.2 ELECTRICAL POWER

3.2.1.1 Electrical power (generally, 440V) will be made available to the Contractor at the pier. The Contractor shall be responsible for providing own matching connectors. The Contractor shall meter all Contractor used

electrical power in the performance of work completed during this availability at the pier. Upon the completion of the availability the Contractor shall submit a CFR documenting the power consumption (kW-hrs) during the completion of work. Metering of electrical power is for Coast Guard information only and the Contractor will not be billed for electrical power.

NOTE: Since pier configurations vary greatly, it is highly recommended that the Contractor conduct a shipcheck to determine what equipment will be required to complete the scope of work in this availability package.

3.3 ARC WELDING GROUNDING

3.3.1 Two suitable grounding cables, one forward and one aft, shall be installed by the Contractor to ground the cutter's hull whenever electric arc welding is to be performed on board the cutter. The grounding cable installation shall meet the requirements of MLCPAC Std Spec 074. Install these cables at arrival and remove them before departure, restoring the disturbed areas to original condition.

3.3.2 Grounding cables smaller in diameter than 85 MCM (No. 1 AWG) are not permitted. All grounding cables shall have completely insulated copper conductors with cable lugs. The cable lug contact area shall be thoroughly cleaned to base metal and secured tightly. Grounding cables shall not be permitted to drop overboard into the water.

3.3.3 Arc current terminals on electric welding machines shall be insulated from earth and other structures. An arc-welding machine shall not be connected to more than one vessel at a time. Prior to connecting the welding ground cables to the cutter, use an insulation resistance tester (test voltage no less than arc open circuit voltage) to measure and log the insulation resistance readings. All measurements shall be taken in the presence of the Coast Guard Inspector. The insulation resistance between the welding ground cables (connected to the welding machine) and the welding machine frame shall be no less than 0.1 megohms. Repeat this test whenever the grounding leads are disconnected from the cutter, the welding machine is replaced or repaired, or the cutter is relocated to a different berth or drydock.

3.3.4 Ensure that Ship's Force has disconnected any cabling to sensitive electronic components (e.g., computerized main propulsion engine controls) that may be damaged by induced voltages during welding. Notify Ship's Force to reconnect such cables after arc welding is completed and the grounding cables are removed.

3.4 COMPRESSED AIR

3.4.1 Provide dry compressed air via flexible hoses to a manifold aboard the cutter as designated in the enclosed figure "Temporary Services, Dockside, Home Pier." The manifold shall have at least six 3/4" outlets. Provide shutoff valves for the main lines at the manifold and for each 3/4" outlet. Provide air from 0800 to 2000 daily (7 days a week).

3.5 SEWAGE AND GRAY WATER

3.5.1 During the completion of all Definite Item(s) provide temporary sanitary facilities in accordance with paragraph 3.10 of the General Requirements.

3.6 FIRE EXTINGUISHERS

3.6.1 Provide fully charged fire extinguishers as designated in the enclosed figure "Temporary Services, Dockside, Home Pier" to be used by the Coast Guard. Refill any discharged extinguishers by the start of the next work day.

3.7 GARBAGE AND REFUSE

3.7.1 Provide sufficient dumpsters pierside for the cutter's crew to dispose of garbage and refuse. The containers shall be emptied daily and kept clean to prevent them from becoming a health hazard. The Contractor shall meet all local ordinances to ensure that all garbage and refuse is delivered to appropriate disposal facility.

3.8 PROTECTIVE DECK COVERING

3.8.1 Provide and install deck coverings bulkhead to bulkhead with no deck showing on the edges in accordance with General Requirements, and remove the same upon completion of the availability or at the request of the Coast Guard Inspector. Cover all decks in work areas and access routes to work areas. Tape all seams and edges with duct tape. The Contractor shall keep the protective covering in good repair for the duration of the contract and shall repair with like material, before contract completion, all permanently installed deck and deck covering damaged by yard personnel. The Contractor shall inspect the protective covering each morning, and shall repair any deficient areas, prior to commencing work.

3.8.2 If the cutter is equipped with a flight deck, the Contractor shall cover the entire area of the flight deck and hangar with plywood.

3.9 INSPECTIONS

3.9.1 Coordinate all inspections with the designated Coast Guard Inspector to minimize production delays.

110' WPB Temporary Service Requirements, Dockside Home Pier

Shore Tie Requirements

Service	Connection	Demand	Shore Tie Location	Quantity
Compressed Air	N/A	125 psig	N/A	125 CFM

Intermittent Services

Service	Quantity	Requirements
Fire Extinguishers	3: 15# CO_2 4: 2.5 gallon H_2O	N/A

ITEM 17: MAST(S) PRESERVATION & REPAIR

MI_63120_JMS_0907_110B

1 SCOPE

The intent of this item is to prepare, inspect, repair and coat the entire mast.

Government Furnished Property: NONE

2 REFERENCES

Coast Guard Drawings:

110B-WPB 85-12, Rev -; Booklet of General Plans (Supercedes 110B-WPB-085-7)
110-WPB 171-2, Rev D; Mast Details

Applicable Documents:

Federal Standard FED-STD-595B(1), Rev B, Not 1; Color Used in Government Procurement
COMDTINST M10360.3, Rev C, 6/9/2006; Coatings and Colors Manual
MLCPAC Standard Specification 304.1, 3/1/2000; Shipboard Electrical Cable Test
MLCPAC Standard Specification 304.2, Rev -, 3/1/2000; Shipboard Electrical Cable Removal, Relocation, Splice, Repair and Installation
MLCPAC Standard Specification 400, Rev -, 3/1/1998; General Instructions for Installation, Repair, And/Or Relocation of Electronic Equipment
The Society for Protective Coatings SSPC-SP 1, Rev -, 11/1/2004; Solvent Cleaning
The Society for Protective Coatings SSPC-SP 10/NACE No.2, Rev -, 11/1/2004; Near-White Blast Cleaning
The Society for Protective Coatings SSPC-SP 12/NACE No.5, Rev -, 7/1/2002; Surface Preparation and Cleaning of Steel & Other Hard Materials by High and Ultrahigh Pressure Water Jetting Prior to Recoating
MLCPAC Standard Specification 074, Rev -, 3/21/2003; Welding and Allied Processes

3 REQUIREMENTS

The Contractor shall provide all labor and material to accomplish the following in accordance with the General Requirements:

3.1 The concerned work area is the mast, including support members and all platforms. See the referenced CG Dwgs for general arrangement of the mast.

The mast is expected to require repair work to its overall structure. The mast shall be repaired in accordance with **MLCPAC STANDARD SPECIFICATION 074, REV -, 3/21/2003; WELDING AND ALLIED PROCESSES**

3.2 INTERFERENCES

3.2.1 In the presence of the Coast Guard Inspector, inspect and test all affected equipment and systems to document original condition. Submit a Condition Found Report (CFR) noting any discrepancies in equipment and system operation.

3.2.2 Tag-Outs – Secure, isolate, and tag-out all affected mechanical, piping, and electrical systems in accordance with the General Requirements.

3.2.3 Remove or protect all interferences to the work. Tag all interferences that are removed to facilitate proper reinstallation. Ensure that all removed equipment is kept in a clean, dry, protected location. Obtain verification from the Coast Guard Inspector for the protective measure taken for equipment not removed.

3.2.4 The mast is to be preserved in place. Construct a temporary shelter to enclose the entire mast for the duration of this item. The shelter shall be constructed in such a way to protect work area from weather and to contain abrasive blast material, waste, and paint overspray from leaving work area, in accordance with all applicable local, state and federal laws and regulations.

3.3 SUPPORT

3.3.1 All Contractor personnel handling the electronics components in this work item shall hold, or be under the direct supervision of a holder of a current Federal Communications Commission (FCC) General Radiotelephone Operator License, with a Ship Radar Endorsement. The licensed personnel shall be knowledgeable in the areas of electrical and physical standards for communications equipment; such as radar, waveguide, and antennas. The license shall be presented to the COR before commencing work.

3.3.2 Provide adequate explosion proof lighting to illuminate the work during preparation, inspection and painting.

3.3.3 Maintain airtight integrity of the living and working spaces of the topsides of the cutter in the vicinity of the work area to prevent contamination of the cutter interior with blast grit or paint fumes.

3.3.4 The Contractor shall provide all inspection and testing equipment, including but not limited to surface temperature thermometer, sling psychrometer, psychrometer chart, dry film paint thickness gauge, surface profile tape and spring micrometer.

3.3.5 Present the Coast Guard Inspector the Material Safety Data Sheet (MSDS) for the paint batch. Also provide the manufacturer's application procedures for the coating system.

3.3.6 Notify the Coast Guard Inspector 48 hours prior to surface preparation and the application of any coatings.

3.3.7 Electrical Removals

3.3.7.1 Record exact locations of all equipment mounted on the mast for use in later reinstallation. Before disconnecting any cables, the Contractor shall record all wiring information for use in later reconnection. Retain all mounting and connecting hardware for later reuse.

3.3.7.2 Disconnect cables from all equipment on mast, pull back and coil back to the deck/bulkhead penetrations in accordance with MLCPAC Std Spec 304.2. Remove all electrical equipment located on the mast. Safely stow and protect all equipment.

3.3.7.3 Inspect for defective or deteriorated cables. Submit a CFR.

3.3.8 Electronic Removals

3.3.8.1 Record exact locations of all equipment mounted on the mast for use in later reinstallation. Before disconnecting any cables or waveguide, the Contractor shall record all wiring information for use in later reconnection. Retain all mounting and connecting hardware for later use.

3.3.8.2 Disconnect cables and waveguide from all equipment on mast, pull back and coil back to the deck/bulkhead penetrations in accordance with MLCPAC Std Spec 304.2 and MLCPAC Standard Specification 400. Protect all cable and waveguide terminations/connectors in accordance with MLCPAC Standard Specification 400.

3.3.8.3 In accordance with MLCPAC Standard Specification 400, disconnect any exterior radar waveguide sections to closest junction within interior of mast.

3.3.8.4 Remove all electronics equipment and antennas from the mast. Safely stow and protect all equipment. Retain all mounting and connecting hardware for later reuse.

3.3.8.5 Ensure mast exposed cable penetrations are protected from adverse environmental conditions in accordance with MLCPAC Standard Specification 400.

3.3.9 Inspect for defective or deteriorated cables, connectors and hardware. Submit a CFR.

3.4 SURFACE PREPARATION

NOTE: The Contractor has the option of using either high-/ultrahigh-pressure waterjetting or abrasive blasting to achieve the required surface preparation standard as described below.

3.4.1 In the presence of the Coast Guard Inspector, measure the surface temperature and the dew point. Ensure that proper temperatures and humidity conditions exist for surface preparation.

NOTE: The surface temperature must be at least 5°F above the dew point during surface preparation.

3.4.2 High-/Ultrahigh-Pressure Waterjetting (option 1):

3.4.2.1 For high-/ultrahigh-pressure waterjetting, prepare the mast to a WJ-2 visual level in accordance with SSPC-SP 12.

NOTE: Waterjetting does not provide any additional anchor profile to the steel surface. The use of another surface preparation method, or the addition of grit to the blast water may be necessary to provide the proper anchor.

3.4.3 Abrasive blasting (option 2):

3.4.3.1 Prior to any surface preparation, remove all visible oil, grease, soil, drawing and cutting compounds, and other soluble contaminants from the surface in accordance with SSPC-SP 1.

3.4.3.2 Brush blast the work area to bare metal with clean, fine aluminum oxide, garnet, or equivalent inert material conforming to A-A-59316, Type I & IV. Do not use a blasting material that contains oil or leaves an oil residue on the prepared surfaces.

3.4.4 After surface preparation perform the following test/inspections (regardless of surface preparation method):

3.4.4.1 Prior to applying any paint, remove all dust and abrasive blast residue as well as grease, oil, or other contaminants from the blasted area. In the presence of the Coast Guard Inspector, visually inspect the condition of prepared substrate. Submit a CFR.

3.4.4.2 In the presence of the Coast Guard Inspector, and for every 100 square feet of work area, take and record three (3) surface profile readings from randomly selected locations. Submit results and surface profile tapes to the Coast Guard Inspector. The surface profile shall be within the manufacturer's published recommendation. If no recommendation exists, the profile shall be a minimum of 1.5 and a maximum of 2.5 mils.

3.4.4.3 In the presence of the Coast Guard Inspector, and for every 500 square feet of work area, take and record the non-visible contamination level of one (1) randomly selected location. Use one of the methods listed in Appendix A of SSPC-SP 12. The nonvisual contamination condition shall be a NV-2(SC-2) level or better, as defined in SSPC-SP 12.

3.4.5 Where new paint is to be merged into the existing paint system, provide a 3 inch wide, smoothly tapered boundary from the existing paint to the prepared metal surface.

3.5 COATING APPLICATION

3.5.1 In the presence of the Coast Guard Inspector, measure the surface temperature and the dew point. Ensure that proper temperatures and humidity conditions exist for paint application.

NOTE: The surface temperature must be at least 5°F above the dew point during all coating application.

3.5.2 Coat the prepared surfaces with the following paint system in accordance with COMDTINST M10360.3 and the manufacturer's instructions. Colors specified are FED-STD-595 colors.

One mist coat, 1-2 mils DFT, Epoxy Polysiloxane

One coat, 5-6 mils DFT, Epoxy Polysiloxane, Spar (10371). Mast areas which are directly in the way of stack gases may be black (17038 or 37038).

NOTE: The paint specified has an approximate 4 week lead time.

3.5.3 In the presence of the Coast Guard Inspector, use the dry film paint thickness gauge to verify the dry film thickness.

3.6 RESTORE

3.6.1 Upon completion of mast work, reinstall all removed equipment back to its original locations on mast using previously recorded data.

3.6.2 Reconnect cables to reinstalled equipment using previously recorded data and retained hardware in accordance with MLCPAC Std Spec 304.2 and MLCPAC Standard Specification 400.

3.6.2.1 Renew all damaged retaining clamps and standoffs, nylon fasteners, Type 316 stainless steel tie bands, and rubber chafing strips.

3.6.2.2 Upon completion of all work, test cables in accordance with MLCPAC Std Spec 304.1 and MLCPAC Standard Specification 400 prior to any operational test.

3.7 CLEARING TAGS – Restore all affected systems and clear tags in accordance with the General Requirements.

3.8 Remove temporary shelter and scaffolding.

3.9 Restore work and surrounding area to a clean condition. Ensure all abrasive blast grit and paint waste is removed and disposed in accordance with all applicable local, state and federal laws and regulations.

3.10 Coordinate all inspections with the designated Coast Guard Inspector to minimize production delays.

3.11 In the presence of the Coast Guard Inspector, the Contractor shall thoroughly test and prove all mast electronics to be in satisfactory operating condition. Check for proper grounds and operation of all attached equipment

Picture of 110’ WPB Mast